



Permit / Application Information Sheet **Division of Environmental Protection** **West Virginia Office of Air Quality**

Company:	US Methanol LLC		Facility:	Liberty ONE Methanol Plant
Region:	4	Plant ID:	039-00669	Application #: 13-3351
Engineer:	Kessler, Joe		Category:	
Physical Address:	WV-25 Institute WV		SIC: [2869] CHEMICALS AND ALLIED PRODUCTS - INDUSTRIAL ORGANIC CHEMICALS, NEC NAICS: [325199] All Other Basic Organic Chemical Manufacturing	
County:	Kanawha			
Other Parties:	Consultant - WARD, PATRICK (304)-342-1400 OPER_MGR - Wolfli, Richard 681-205-8511			

Information Needed for Database and AIRS

1. Need valid physical West Virginia address with zip
2. Air Program
3. Inspection result
4. Pollutant and class

Regulated Pollutants

CO	Carbon Monoxide	37.140 TPY
HC26	Methanol	7.130 TPY
PM10	Particulate Matter < 10 um	3.830 TPY
SO2	Sulfur Dioxide	0.360 TPY
VOC	Volatile Organic Compounds (Reactive organic gases)	14.050 TPY
PM2.5	Particulate Matter < 2.5 um	3.830 TPY
PT	Total Particulate Matter	3.830 TPY
VHAP	VOLATILE ORGANIC HAZARDOUS AIR POLLUTANT	7.990 TPY
NOX	Nitrogen Oxides (including NO, NO2, NO3, N2O3, N2O4, and N2O5)	72.620 TPY

Summary from this Permit 13-3351

Air Programs	Applicable Regulations
NSPS	
TITLE V	
Fee Program	Application Type
6B	CONSTRUCTION

Activity Dates

APPLICATION RECEIVED	11/28/2016
APPLICATION FEE PAID	11/28/2016
ASSIGNED DATE	11/28/2016
APPLICANT PUBLISHED LEGAL AD	11/29/2016
APPLICATION DEEMED COMPLETE	12/21/2016

Notes from Database

Permit Note: Construction of a 580 tons/day natural gas-to-methanol plant.

NOTICE

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Please note, this information sheet is not a substitute for file research and is limited to data entered into the AIRTRAX database.

Company ID: 039-00669
Company: US Methanol LLC
Printed: 01/18/2017
Engineer: Kessler, Joe

IPR FILE INDEX

Applicant : US Methanol LLC
Facility : Liberty One Methanol Plant

Plant ID No.: 039-00669
R13-3351

Chronological Order - Add Index Pages As Necessary

Date	To	From	Subject	# of pages
11/28/16	USM	Sandra Adkins	48-Hour Letter	
12/05/16	Joe Kessler	USM	Affidavit of Publication	
12/21/16	USM	Joe Kessler	Completeness Determination	
2/01/17	File	Joe Kessler	DAQ/USM E-mails	
2/01/17	File	Joe Kessler	Draft Permit R13-3351, Evaluation/Fact Sheet, Tracking Manifest	
2/01/17	Various	Sandra Adkins	Public Notice Documents	

JRK
2/01/17

AIR QUALITY PERMIT NOTICE

Notice of Intent to Approve

On November 28, 2016, US Methanol LLC applied to the WV Department of Environmental Protection, Division of Air Quality (DAQ) for a permit to construct the Liberty One Methanol Plant located adjacent to State Route 25 in Institute, Kanawha County, WV at latitude 38.38766 and longitude -81.78122. A preliminary evaluation has determined that all State and Federal air quality requirements will be met by the proposed facility. The DAQ is providing notice to the public of its preliminary determination to issue the permit as R13-3351.

The following potential emissions will be authorized by this permit action: Particulate Matter less than 2.5 microns, 3.83 tons per year (TPY); Particulate Matter less than 10 microns, 3.83 TPY; Particulate Matter, 3.83 TPY; Sulfur Dioxide, 0.36 TPY; Oxides of Nitrogen, 72.62 TPY; Carbon Monoxide, 45.44 TPY; Volatile Organic Compounds, 14.05 TPY; Hazardous Air Pollutants, 7.99 TPY.

Written comments or requests for a public meeting must be received by the DAQ before 5:00 p.m. on XXXXX. A public meeting may be held if the Director of the DAQ determines that significant public interest has been expressed, in writing, or when the Director deems it appropriate.

The purpose of the DAQ's permitting process is to make a preliminary determination if the proposed construction will meet all State and Federal air quality requirements. The purpose of the public review process is to accept public comments on air quality issues relevant to this determination. Only written comments received at the address noted below within the specified time frame, or comments presented orally at a scheduled public meeting, will be considered prior to final action on the permit. All such comments will become part of the public record.

Joe Kessler, PE
WV Department of Environmental Protection
Division of Air Quality
601 57th Street, SE
Charleston, WV 25304
Telephone: 304/926-0499, ext. 1219
FAX: 304/926-0478

Entire Document
NON-CONFIDENTIAL

Additional information, including copies of the draft permit, application and all other supporting materials relevant to the permit decision may be obtained by contacting the engineer listed above. The draft permit and engineering evaluation can be downloaded at:

www.dep.wv.gov/daq/Pages/NSRPermitsforReview.aspx

Kessler, Joseph R

From: Adkins, Sandra K
Sent: Tuesday, January 31, 2017 10:47 AM
To: Glance, Jacob P
Cc: Kessler, Joseph R
Subject: DAQ Public Notice

Please see below the Public Notice for Draft Permit R13-3351 for US Methanol LLC's Liberty One Methanol Plant located in Kanawha County.

The notice will be published in *The Charleston Gazette-Mail* on Thursday, February 2, 2017, and the thirty day comment period will end on Monday, March 6, 2017.

AIR QUALITY PERMIT NOTICE

Notice of Intent to Approve

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Written comments or requests for a public meeting must be received by the DAQ before 5:00 p.m. on Monday, March 6, 2017. A public meeting may be held if the Director of the DAQ determines that significant public interest has been expressed, in writing, or when the Director deems it appropriate.

The purpose of the DAQ's permitting process is to make a preliminary determination if the proposed construction will meet all State and Federal air quality requirements. The purpose of the public review process is to accept public comments on air quality issues relevant to this determination. Only written comments received at the address noted below within the specified time frame, or comments presented orally at a scheduled public meeting, will be considered prior to final action on the permit. All such comments will become part of the public record.

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Kessler, Joseph R

From: Adkins, Sandra K
Sent: Wednesday, February 1, 2017 8:37 AM
To: 'wentworth.paul@epa.gov'; 'bradley.megan@epa.gov'; richard.wolfli@usmeoh.com; peward@potesta.com
Cc: Durham, William F; McKeone, Beverly D; McCumbers, Carrie; Hammonds, Stephanie E; Kessler, Joseph R; Taylor, Danielle R; Rice, Jennifer L
Subject: WV Draft Permit R13-3351 for US Methanol LLC; Liberty One Methanol Plant
Attachments: 3351.pdf; Eval3351.pdf; notice.pdf; AttachmentA.PDF

Please find attached the Draft Permit R13-3351, Engineering Evaluation, Attachment A, and Public Notice for US Methanol LLC's Liberty One Methanol Plant to be located in Kanawha County.

The notice will be published in *The Charleston Gazette-Mail* on Thursday, February 2, 2017, and the thirty day comment period will end on Monday, March 6, 2017.

Should you have any questions or comments, please contact the permit writer, Joe Kessler, at 304 926-0499 x1219.

West Virginia Department of Environmental Protection

*Jim Justice
Governor*

Division of Air Quality

*Austin Caperton
Cabinet Secretary*

Permit to Construct

Entire Document
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R13-3351

This permit is issued in accordance with the West Virginia Air Pollution Control Act (West Virginia Code §§ 22-5-1 et seq.) and 45 C.S.R. 13 — Permits for Construction, Modification, Relocation and Operation of Stationary Sources of Air Pollutants, Notification Requirements, Temporary Permits, General Permits and Procedures for Evaluation. The permittee identified at the facility listed below is authorized to construct the stationary sources of air pollutants identified herein in accordance with all terms and conditions of this permit.

Issued to:

US Methanol LLC
Liberty One Methanol Plant
039-00669

DRAFT

*William F. Durham
Director*

Issued: **DRAFT**

Facility Location: Institute, Kanawha County, West Virginia
Mailing Address: 400 Capitol Street, Suite 200, Charleston, WV 25301
Facility Description: Methanol Plant
SIC/NAICS Code: 2869/325199
UTM Coordinates: 431.696 km Easting • 4,249.108 km Northing • Zone 17
Latitude/Longitude: 38.38766/-81.78.122
Permit Type: Construction
Desc. of Change: Construction of a 580 tons/day natural gas-to-methanol plant.

Any person whose interest may be affected, including, but not necessarily limited to, the applicant and any person who participated in the public comment process, by a permit issued, modified or denied by the Secretary may appeal such action of the Secretary to the Air Quality Board pursuant to article one [§§ 22B-1-1 et seq.], Chapter 22B of the Code of West Virginia. West Virginia Code §22-5-14.

As a result of this permit, the source is a nonmajor or area source subject to 45CSR30. Therefore, the facility is not subject to the permitting requirements of 45CSR30 and is classified as a deferred source.

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1.0 Emission Units

Emission Unit ID	Emission Point ID	Emission Unit Description	Year Installed	Design Capacity	Control Device
Methanol Production Units					
1S	1E	Steam Methane Natural Gas Reformer (Unit 1000) including Heater H-1101	2017	310 tons-Methanol/day 103 mmBtu/hr	None, Flare (4C) ⁽¹⁾
2S	2E	Auto Thermal Natural Gas Reformer (Unit 10000) including Heater H-10101	2017	270 tons-Methanol/day 3.331 mmBtu/hr	None, Flare (4C) ⁽¹⁾
3S	n/a	Methanol Synthesis Unit (Unit 2000)	2017	580 tons-Methanol/day	None
4S	n/a	Methanol Distillation Unit (Unit 3000)	2017	580 tons-Methanol/day	None
Storage Tanks					
5S	3E	TK1 - Rundown Tank 1 (Methanol)	2017	75,000 gallons	Scrubber (2C)
6S	3E	TK2 - Rundown Tank 2 (Methanol)	2017	75,000 gallons	Scrubber (2C)
7S	3E	TK3- Fusel Oil Tank (Fusel Oil)	2017	12,000 gallons	Scrubber (2C)
8S	3E	TK4 - Sales Tank 1 (Methanol)	2017	1,200,000 gallons	Scrubber (2C) ⁽²⁾
9S	3E	TK5 - Sales Tank 2 (Methanol)	2017	1,200,000 gallons	Scrubber (2C) ⁽²⁾
10S	3E	TK6 - Slop Tank (Off-grade Methanol)	2017	150,000 gallons	Scrubber (2C)
12S	4E	TK7 - Product Tank 1 (Methanol)	2017	1,200,000 gallons	Scrubber (3C) ⁽²⁾
13S	4E	TK8 - Product Tank 2 (Methanol)	2017	1,200,000 gallons	Scrubber (3C) ⁽²⁾
Material Loadout					
11S	3E	Truck Loading (Fusel Oil)	2017	100 gallons/minute	Scrubber (2C)
14S	4E	Barge Loading	2017	1,000 gallons/minute	Scrubber (3C)
Other Emission Units					
15S	5E	Flare	2017	TBD	None

1.0 Emission Units

Emission Unit ID	Emission Point ID	Emission Unit Description	Year Installed	Design Capacity	Control Device
Fugitive Emission Sources					
16S	n/a	Vehicle Activity	2017	n/a	None
17S	n/a	Natural Gas System Fugitives	2017	n/a	n/a, Flare (4C)
18S	n/a	Syngas System Fugitives	2017	n/a	n/a, Flare (4C)
19S	n/a	Methanol System Fugitives	2017	n/a	n/a, Flare (4C)

- (1) Both Reformers include heaters than combust natural gas during startup and syngas during normal operations. There are no emission controls on the exhaust from these combustion units. However, raw syngas is flared during startup and shutdown operations from both Reformers.
- (2) Storage Tank has an internal floating roof.

2.0. General Conditions

2.1. Definitions

- 2.1.1. All references to the "West Virginia Air Pollution Control Act" or the "Air Pollution Control Act" mean those provisions contained in W.Va. Code §§ 22-5-1 to 22-5-18.
- 2.1.2. The "Clean Air Act" means those provisions contained in 42 U.S.C. §§ 7401 to 7671q, and regulations promulgated thereunder.
- 2.1.3. "Secretary" means the Secretary of the Department of Environmental Protection or such other person to whom the Secretary has delegated authority or duties pursuant to W.Va. Code §§ 22-1-6 or 22-1-8 (45 CSR § 30-2.12.). The Director of the Division of Air Quality is the Secretary's designated representative for the purposes of this permit.

2.2. Acronyms

CAAA	Clean Air Act Amendments	NO_x	Nitrogen Oxides
CBI	Confidential Business Information	NSPS	New Source Performance Standards
CEM	Continuous Emission Monitor	PM	Particulate Matter
CES	Certified Emission Statement	PM_{2.5}	Particulate Matter less than 2.5µm in diameter
C.F.R. or CFR	Code of Federal Regulations	PM₁₀	Particulate Matter less than 10µm in diameter
CO	Carbon Monoxide	Ppb	Pounds per Batch
C.S.R. or CSR	Codes of State Rules	pph	Pounds per Hour
DAQ	Division of Air Quality	ppm	Parts per Million
DEP	Department of Environmental Protection	Ppmv or ppmv	Parts per million by volume
dscm	Dry Standard Cubic Meter	PSD	Prevention of Significant Deterioration
FOIA	Freedom of Information Act	psi	Pounds per Square Inch
HAP	Hazardous Air Pollutant	SIC	Standard Industrial Classification
HON	Hazardous Organic NESHAP	SIP	State Implementation Plan
HP	Horsepower	SO₂	Sulfur Dioxide
lbs/hr	Pounds per Hour	TAP	Toxic Air Pollutant
LDAR	Leak Detection and Repair	TPY	Tons per Year
M	Thousand	TRS	Total Reduced Sulfur
MACT	Maximum Achievable Control Technology	TSP	Total Suspended Particulate
MDHI	Maximum Design Heat Input	USEPA	United States Environmental Protection Agency
MM	Million	UTM	Universal Transverse Mercator
MMBtu/hr or mmbtu/hr	Million British Thermal Units per Hour	VEE	Visual Emissions Evaluation
MMCF/hr or mmcf/hr	Million Cubic Feet per Hour	VOC	Volatile Organic Compounds
NA	Not Applicable	VOL	Volatile Organic Liquids
NAAQS	National Ambient Air Quality Standards		
NESHAPS	National Emissions Standards for Hazardous Air Pollutants		

2.3. Authority

This permit is issued in accordance with West Virginia Air Pollution Control Law W.Va. Code §§22-5-1 et seq. and the following Legislative Rules promulgated thereunder:

- 2.3.1. 45CSR13 – *Permits for Construction, Modification, Relocation and Operation of Stationary Sources of Air Pollutants, Notification Requirements, Temporary Permits, General Permits and Procedures for Evaluation.*

2.4. Term and Renewal

- 2.4.1. This permit shall remain valid, continuous and in effect unless it is revised, suspended, revoked or otherwise changed under an applicable provision of 45CSR13 or any applicable legislative rule.

2.5. Duty to Comply

- 2.5.1. The permitted facility shall be constructed and operated in accordance with the plans and specifications filed in Permit Applications R13-3351 and any modifications, administrative updates, or amendments thereto. The Secretary may suspend or revoke a permit if the plans and specifications upon which the approval was based are not adhered to;
[45CSR§§13-5.11 and 13-10.3]
- 2.5.2. The permittee must comply with all conditions of this permit. Any permit noncompliance constitutes a violation of the West Virginia Code and the Clean Air Act and is grounds for enforcement action by the Secretary or USEPA;
- 2.5.3. Violations of any of the conditions contained in this permit, or incorporated herein by reference, may subject the permittee to civil and/or criminal penalties for each violation and further action or remedies as provided by West Virginia Code 22-5-6 and 22-5-7;
- 2.5.4. Approval of this permit does not relieve the permittee herein of the responsibility to apply for and obtain all other permits, licenses and/or approvals from other agencies; i.e., local, state and federal, which may have jurisdiction over the construction and/or operation of the source(s) and/or facility herein permitted.

2.6. Duty to Provide Information

The permittee shall furnish to the Secretary within a reasonable time any information the Secretary may request in writing to determine whether cause exists for administratively updating, modifying, revoking or terminating the permit or to determine compliance with the permit. Upon request, the permittee shall also furnish to the Secretary copies of records to be kept by the permittee. For information claimed to be confidential, the permittee shall furnish such records to the Secretary along with a claim of confidentiality in accordance with 45CSR31. If confidential information is to be sent to USEPA, the permittee shall directly provide such information to USEPA along with a claim of confidentiality in accordance with 40 C.F.R. Part 2.

2.7. Duty to Supplement and Correct Information

Upon becoming aware of a failure to submit any relevant facts or a submittal of incorrect information in any permit application, the permittee shall promptly submit to the Secretary such supplemental facts or corrected information.

2.8. Administrative Update

The permittee may request an administrative update to this permit as defined in and according to the procedures specified in 45CSR13.

[45CSR§13-4]

2.9. Permit Modification

The permittee may request a minor modification to this permit as defined in and according to the procedures specified in 45CSR13.

[45CSR§13-5.4.]

2.10. Major Permit Modification

The permittee may request a major modification as defined in and according to the procedures specified in 45CSR14 or 45CSR19, as appropriate.

[45CSR§13-5.1]

2.11. Inspection and Entry

The permittee shall allow any authorized representative of the Secretary, upon the presentation of credentials and other documents as may be required by law, to perform the following:

- a. At all reasonable times (including all times in which the facility is in operation) enter upon the permittee's premises where a source is located or emissions related activity is conducted, or where records must be kept under the conditions of this permit;
- b. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit;
- c. Inspect at reasonable times (including all times in which the facility is in operation) any facilities, equipment (including monitoring and air pollution control equipment), practices, or operations regulated or required under the permit;
- d. Sample or monitor at reasonable times substances or parameters to determine compliance with the permit or applicable requirements or ascertain the amounts and types of air pollutants discharged.

2.12. Emergency

- 2.12.1. An "emergency" means any situation arising from sudden and reasonable unforeseeable events beyond the control of the source, including acts of God, which situation requires immediate corrective action to restore normal operation, and that causes the source to exceed a technology-based emission

limitation under the permit, due to unavoidable increases in emissions attributable to the emergency. An emergency shall not include noncompliance to the extent caused by improperly designed equipment, lack of preventative maintenance, careless or improper operation, or operator error.

- 2.12.2. Effect of any emergency. An emergency constitutes an affirmative defense to an action brought for noncompliance with such technology-based emission limitations if the conditions of Section 2.12.3 are met.
- 2.12.3. The affirmative defense of emergency shall be demonstrated through properly signed, contemporaneous operating logs, or other relevant evidence that:
- a. An emergency occurred and that the permittee can identify the cause(s) of the emergency;
 - b. The permitted facility was at the time being properly operated;
 - c. During the period of the emergency the permittee took all reasonable steps to minimize levels of emissions that exceeded the emission standards, or other requirements in the permit; and,
 - d. The permittee submitted notice of the emergency to the Secretary within one (1) working day of the time when emission limitations were exceeded due to the emergency and made a request for variance, and as applicable rules provide. This notice must contain a detailed description of the emergency, any steps taken to mitigate emission, and corrective actions taken.
- 2.12.4. In any enforcement proceeding, the permittee seeking to establish the occurrence of an emergency has the burden of proof.
- 2.12.5. The provisions of this section are in addition to any emergency or upset provision contained in any applicable requirement.

2.13. Need to Halt or Reduce Activity Not a Defense

It shall not be a defense for a permittee in an enforcement action that it should have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit. However, nothing in this paragraph shall be construed as precluding consideration of a need to halt or reduce activity as a mitigating factor in determining penalties for noncompliance if the health, safety, or environmental impacts of halting or reducing operations would be more serious than the impacts of continued operations.

2.14. Suspension of Activities

In the event the permittee should deem it necessary to suspend, for a period in excess of sixty (60) consecutive calendar days, the operations authorized by this permit, the permittee shall notify the Secretary, in writing, within two (2) calendar weeks of the passing of the sixtieth (60) day of the suspension period.

2.15. Property Rights

This permit does not convey any property rights of any sort or any exclusive privilege.

2.16. Severability

The provisions of this permit are severable and should any provision(s) be declared by a court of competent jurisdiction to be invalid or unenforceable, all other provisions shall remain in full force and effect.

2.17. Transferability

This permit is transferable in accordance with the requirements outlined in Section 10.1 of 45CSR13.
[45CSR§13-10.1]

2.18. Notification Requirements

The permittee shall notify the Secretary, in writing, no later than thirty (30) calendar days after the actual startup of the operations authorized under this permit.

2.19. Credible Evidence

Nothing in this permit shall alter or affect the ability of any person to establish compliance with, or a violation of, any applicable requirement through the use of credible evidence to the extent authorized by law. Nothing in this permit shall be construed to waive any defense otherwise available to the permittee including, but not limited to, any challenge to the credible evidence rule in the context of any future proceeding.

3.0. Facility-Wide Requirements

3.1. Limitations and Standards

- 3.1.1. **Open burning.** The open burning of refuse by any person, firm, corporation, association or public agency is prohibited except as noted in 45CSR§6-3.1.
[45CSR§6-3.1.]
- 3.1.2. **Open burning exemptions.** The exemptions listed in 45CSR§6-3.1 are subject to the following stipulation: Upon notification by the Secretary, no person shall cause, suffer, allow or permit any form of open burning during existing or predicted periods of atmospheric stagnation. Notification shall be made by such means as the Secretary may deem necessary and feasible.
[45CSR§6-3.2.]
- 3.1.3. **Asbestos.** The permittee is responsible for thoroughly inspecting the facility, or part of the facility, prior to commencement of demolition or renovation for the presence of asbestos and complying with 40 C.F.R. § 61.145, 40 C.F.R. § 61.148, and 40 C.F.R. § 61.150. The permittee, owner, or operator must notify the Secretary at least ten (10) working days prior to the commencement of any asbestos removal on the forms prescribed by the Secretary if the permittee is subject to the notification requirements of 40 C.F.R. § 61.145(b)(3)(i). The USEPA, the Division of Waste Management and the Bureau for Public Health - Environmental Health require a copy of this notice to be sent to them.
[40CFR§61.145(b) and 45CSR§34]
- 3.1.4. **Odor.** No person shall cause, suffer, allow or permit the discharge of air pollutants which cause or contribute to an objectionable odor at any location occupied by the public.
[45CSR§4-3.1 State-Enforceable only.]
- 3.1.5. **Permanent shutdown.** A source which has not operated at least 500 hours in one 12-month period within the previous five (5) year time period may be considered permanently shutdown, unless such source can provide to the Secretary, with reasonable specificity, information to the contrary. All permits may be modified or revoked and/or reapplication or application for new permits may be required for any source determined to be permanently shutdown.
[45CSR§13-10.5.]
- 3.1.6. **Standby plan for reducing emissions.** When requested by the Secretary, the permittee shall prepare standby plans for reducing the emissions of air pollutants in accordance with the objectives set forth in Tables I, II, and III of 45 C.S.R. 11.
[45CSR§11-5.2.]

3.2. Monitoring Requirements

- 3.2.1. **Emission Limit Averaging Time.** Unless otherwise specified, compliance with all annual limits shall be based on a rolling twelve month total. A rolling twelve month total shall be the sum of the measured parameter of the previous twelve calendar months. Compliance with all hourly emission limits shall be based on the applicable NAAQS averaging times or, where applicable, as given in any approved performance test method.

3.3. Testing Requirements

- 3.3.1. **Stack testing.** As per provisions set forth in this permit or as otherwise required by the Secretary, in accordance with the West Virginia Code, underlying regulations, permits and orders, the permittee shall conduct test(s) to determine compliance with the emission limitations set forth in this permit and/or established or set forth in underlying documents. The Secretary, or his duly authorized representative, may at his option witness or conduct such test(s). Should the Secretary exercise his option to conduct such test(s), the operator shall provide all necessary sampling connections and sampling ports to be located in such manner as the Secretary may require, power for test equipment and the required safety equipment, such as scaffolding, railings and ladders, to comply with generally accepted good safety practices. Such tests shall be conducted in accordance with the methods and procedures set forth in this permit or as otherwise approved or specified by the Secretary in accordance with the following:
- a. The Secretary may on a source-specific basis approve or specify additional testing or alternative testing to the test methods specified in the permit for demonstrating compliance with 40 C.F.R. Parts 60, 61, and 63 in accordance with the Secretary's delegated authority and any established equivalency determination methods which are applicable. If a testing method is specified or approved which effectively replaces a test method specified in the permit, the permit may be revised in accordance with 45CSR§13-4 or 45CSR§13-5.4 as applicable.
 - b. The Secretary may on a source-specific basis approve or specify additional testing or alternative testing to the test methods specified in the permit for demonstrating compliance with applicable requirements which do not involve federal delegation. In specifying or approving such alternative testing to the test methods, the Secretary, to the extent possible, shall utilize the same equivalency criteria as would be used in approving such changes under Section 3.3.1.a. of this permit. If a testing method is specified or approved which effectively replaces a test method specified in the permit, the permit may be revised in accordance with 45CSR§13-4 or 45CSR§13-5.4 as applicable.
 - c. All periodic tests to determine mass emission limits from or air pollutant concentrations in discharge stacks and such other tests as specified in this permit shall be conducted in accordance with an approved test protocol. Unless previously approved, such protocols shall be submitted to the Secretary in writing at least thirty (30) days prior to any testing and shall contain the information set forth by the Secretary. In addition, the permittee shall notify the Secretary at least fifteen (15) days prior to any testing so the Secretary may have the opportunity to observe such tests. This notification shall include the actual date and time during which the test will be conducted and, if appropriate, verification that the tests will fully conform to a referenced protocol previously approved by the Secretary.
 - d. The permittee shall submit a report of the results of the stack test within sixty (60) days of completion of the test. The test report shall provide the information necessary to document the objectives of the test and to determine whether proper procedures were used to accomplish these objectives. The report shall include the following: the certification described in paragraph 3.5.1.; a statement of compliance status, also signed by a responsible official; and, a summary of conditions which form the basis for the compliance status evaluation. The summary of conditions shall include the following:

1. The permit or rule evaluated, with the citation number and language;
 2. The result of the test for each permit or rule condition; and,
 3. A statement of compliance or noncompliance with each permit or rule condition.
- [WV Code § 22-5-4(a)(14-15) and 45CSR13]

3.4. Recordkeeping Requirements

- 3.4.1. **Retention of records.** The permittee shall maintain records of all information (including monitoring data, support information, reports and notifications) required by this permit recorded in a form suitable and readily available for expeditious inspection and review. Support information includes all calibration and maintenance records and all original strip-chart recordings for continuous monitoring instrumentation. The files shall be maintained for at least five (5) years following the date of each occurrence, measurement, maintenance, corrective action, report, or record. At a minimum, the most recent two (2) years of data shall be maintained on site. The remaining three (3) years of data may be maintained off site, but must remain accessible within a reasonable time. Where appropriate, the permittee may maintain records electronically (on a computer, on computer floppy disks, CDs, DVDs, or magnetic tape disks), on microfilm, or on microfiche.
- 3.4.2. **Odors.** For the purposes of 45CSR4, the permittee shall maintain a record of all odor complaints received, any investigation performed in response to such a complaint, and any responsive action(s) taken.
- [45CSR§4. *State-Enforceable only.*]

3.5. Reporting Requirements

- 3.5.1. **Responsible official.** Any application form, report, or compliance certification required by this permit to be submitted to the DAQ and/or USEPA shall contain a certification by the responsible official that states that, based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate and complete.
- 3.5.2. **Confidential information.** A permittee may request confidential treatment for the submission of reporting required by this permit pursuant to the limitations and procedures of W.Va. Code § 22-5-10 and 45CSR31.
- 3.5.3. **Correspondence.** All notices, requests, demands, submissions and other communications required or permitted to be made to the Secretary of DEP and/or USEPA shall be made in writing and shall be deemed to have been duly given when delivered by hand, or mailed first class with postage prepaid to the address(es) set forth below or to such other person or address as the Secretary of the Department of Environmental Protection may designate (however, in lieu of regular mail reports may be sent to the following e-mail account: DEPAirQualityReports@wv.gov):

If to the DAQ:

Director
WVDEP
Division of Air Quality
601 57th Street, SE
Charleston, WV 25304-2345
or:
DEPAirQualityReports@wv.gov

If to the USEPA:

Associate Director
Office of Air Enforcement and Compliance
Assistance Review (3AP20)
U. S. Environmental Protection Agency
Region III
1650 Arch Street
Philadelphia, PA 19103-2029

3.5.4. Operating Fee.

- 3.5.4.1. In accordance with 45CSR30 – Operating Permit Program, the permittee shall submit a Certified Emissions Statement (CES) and pay fees on an annual basis in accordance with the submittal requirements of the Division of Air Quality. A receipt for the appropriate fee shall be maintained on the premises for which the receipt has been issued, and shall be made immediately available for inspection by the Secretary or his/her duly authorized representative.
- 3.5.4.2. In accordance with 45CSR30 – Operating Permit Program, enclosed with this permit is a Certified Emissions Statement (CES) Invoice, from the date of initial startup through the following June 30. Said invoice and the appropriate fee shall be submitted to this office no later than 30 days prior to the date of initial startup. For any startup date other than July 1, the permittee shall pay a fee or prorated fee in accordance with the Section 4.5 of 45CSR22. A copy of this schedule may be found attached to the Certified Emissions Statement (CES) Invoice.
- 3.5.5. **Emission inventory.** At such time(s) as the Secretary may designate, the permittee herein shall prepare and submit an emission inventory for the previous year, addressing the emissions from the facility and/or process(es) authorized herein, in accordance with the emission inventory submittal requirements of the Division of Air Quality. After the initial submittal, the Secretary may, based upon the type and quantity of the pollutants emitted, establish a frequency other than on an annual basis.

4.0. Source-Specific Requirements

4.1. Limitations and Standards

- 4.1.1. Only those emission units/sources as identified in Table 1.0, with the exception of any *de minimis* sources as identified under Table 45-13B of 45CSR13, are authorized at the permitted facility by this permit. In accordance with the information filed in Permit Application R13-3351, the emission units/sources identified under Table 1.0 of this permit shall be installed, maintained, and operated so as to minimize any fugitive escape of pollutants, shall not exceed the listed maximum design capacities, shall use the specified control devices, and comply with any other information provided under Table 1.0.
- 4.1.2. The production of methanol (CAS# 67-56-1) from the Liberty One Methanol Plant shall not exceed 580 tons-methanol/day or 211,700 tons per year. The Methanol Production Units, identified as 1S through 4S, shall be designed, operated, and maintained so that tail gases, offgases (including process vents used in normal operation) from these units shall not be released directly or indirectly into the atmosphere (unless in accordance with the provisions of this section). This requirement does not apply to process heater combustion exhaust, air, nitrogen, steam, or any other non-pollutant entrained gas stream introduced into unit(s) during periods when a unit is shut down as might be needed for purposes of maintenance or to purge unit(s) in preparation for startup.
- 4.1.3. **Steam Methane Natural Gas Reformer**
The Steam Methane Natural Gas Reformer (SMR), identified as 1S, shall meet the following requirements:
- a. The Heater H-1101 shall not exceed an aggregate MDHI of 103.00 mmBtu/hr, shall only be fired by pipeline-quality natural gas (PNG), produced synthetic/purge gas (syngas), or a mixture of each, and shall not exceed those emission limits given in the following table during all periods of operation:

Table 4.1.3(a): SMR Heater-1101 Emission Limits⁽¹⁾

Pollutant	PPH	TPY
CO	8.48	37.14
NO _x	16.00	70.08
PM _{2.5} /PM ₁₀ /PM ⁽²⁾	0.77	3.37
SO ₂	0.06	0.26
VOCs	0.56	2.45
HAPs	0.19	0.83

- (1) These emission limits are valid for all operational scenarios: startup and steady-state operation, combustion of PNG, syngas, and the mixture of both.
(2) Includes condensables.

- b. Heater H-1101 shall not generate more than 9,929 mmscf/year of flue gas;
- c. During startup operations of the SMR, syngas shall be sent, via a closed system, to the flare until such time as the syngas is of sufficient quality to begin methanol synthesis;

d. **45CSR2**

The Heater H-1101 is subject to the applicable limitations and standards under 45CSR2, including the requirements as given below under (1) through (3).

- (1) The permittee shall not cause, suffer, allow or permit emission of smoke and/or particulate matter into the open air from the fuel burning units which is greater than ten (10) percent opacity based on a six minute block average.

[45CSR§2-3.1]

- (2) The permittee shall not cause, suffer, allow or permit the discharge of particulate matter into the open air from the fuel burning units, measured in terms of pounds per hour in excess of the amount determined as follows:

- (i) The product of 0.09 and the total design heat input for the fuel burning units in million British Thermal Units (B.T.U.'s) per hour, provided however that no more than twelve hundred (1200) pounds per hour of particulate matter shall be discharged into the open air.

[45CSR§2-4.1a]

- (3) The visible emission standards set forth in section 3 of 45CSR2 shall apply at all times except in periods of start-ups, shutdowns and malfunctions. Where the Director believes that start-ups and shutdowns are excessive in duration and/or frequency, the Director may require an owner or operator to provide a written report demonstrating that such frequent start-ups and shutdowns are necessary.

[45CSR§2-9.1]

- e. The Heater H-1101 is subject to the applicable limitations and standards under 45CSR10, including the requirement as given below under (1) and (2).

- (1) The permittee shall not cause, suffer, allow or permit the discharge of sulfur dioxide into the open air from the fuel burning units measured in terms of pounds per hour, in excess of the product of 3.2 and the total design heat of the boilers in million BTU's per hour.

[45CSR§10-3.1]

- (2) No person shall cause, suffer, allow or permit the combustion of any refinery process gas stream or any other process gas stream that contains hydrogen sulfide in a concentration greater than 50 grains per 100 cubic feet of gas except in the case of a person operating in compliance with an emission control and mitigation plan approved by the Director and U. S. EPA. In certain cases very small units may be considered exempt from this requirement if, in the opinion of the Director, compliance would be economically unreasonable and if the contribution of the unit to the surrounding air quality could be considered negligible.

[45CSR§10-5.1]

4.1.4. **Auto Thermal Natural Gas Reformer**

The Auto Thermal Natural Gas Reformer (ATR), identified as 2S, shall meet the following requirements:

- a. The Heater H-10101 shall not exceed an aggregate MDHI of 3.331 mmBtu/hr, shall only be fired by PNG, and shall not exceed those emission limits given in the following table:

Table 4.1.4(a): ATR Heater-10101 Emission Limits

Pollutant	PPH	TPY
CO	0.27	1.20
NO _x	0.33	1.43
VOCs	0.02	0.08

- b. As the annual emissions are based on 8,760 hours of operation, there is no annual limit on hours of operation or PNG combusted on an annual basis for Heater H-10101;
- c. During normal operations, all syngas created in the ATR shall be either sent to the MSU or used as a fuel gas;
- d. **45CSR2**
No person shall cause, suffer, allow or permit emission of smoke and/or particulate matter into the open air from any fuel burning unit which is greater than ten (10) percent opacity based on a six minute block average.
[40CSR§2-3.1]

4.1.5. Storage Tanks

Use of the storage tanks, identified as 5S through 13S, shall be in accordance with the following:

- a. Tank size and material stored shall be limited as specified under Table 1.0 of this permit;
- b. Storage Tanks 8S, 9S, 12S, and 13S shall be equipped with an internal floating roof pursuant to the applicable requirements given under 40 CFR 60, Subpart Kb and storage tanks 5S, 6S, 10S, and 11S shall be equipped with a closed vent system and scrubber pursuant to the applicable requirements given under 40 CFR 60, Subpart Kb;
- c. Storage tank 7S shall be equipped with a closed vent system and scrubber pursuant to the applicable requirements given under 4.1.10 below;
- d. Aggregate annual storage tank throughputs (in gallons) shall not exceed those given in the following table:

Table 4.5.1(d): Storage Tanks Operational Limits

Tank ID	Material Stored	Throughput
5S, 6S, 10S, 11S	Methanol	67,650,000
7S	Fusel Oil	225,000
8S, 9S, 12S, 13S	Methanol	123,000,000

- e. The aggregate controlled emissions of methanol vapors from all storage shall not exceed 4.27 pounds/hour and 0.24 tons/year; and
- f. **40 CFR 60, Subpart Kb**
Storage tanks 5S, 6S, and 8S - 13S are subject to all applicable requirements given in 40 CFR 60, Subpart Kb including the following:

- (1) The owner or operator of each storage vessel either with a design capacity greater than or equal to 151 m³ containing a VOL that, as stored, has a maximum true vapor pressure equal to or greater than 5.2 kPa but less than 76.6 kPa or with a design capacity greater than or equal to 75 m³ but less than 151 m³ containing a VOL that, as stored, has a maximum true vapor pressure equal to or greater than 27.6 kPa but less than 76.6 kPa, shall equip each storage vessel with one of the following:

[40 CFR§60.112b(a)]

- (i) A fixed roof in combination with an internal floating roof meeting the following specifications:

(A) The internal floating roof shall rest or float on the liquid surface (but not necessarily in complete contact with it) inside a storage vessel that has a fixed roof. The internal floating roof shall be floating on the liquid surface at all times, except during initial fill and during those intervals when the storage vessel is completely emptied or subsequently emptied and refilled. When the roof is resting on the leg supports, the process of filling, emptying, or refilling shall be continuous and shall be accomplished as rapidly as possible.

[40 CFR§60.112b(a)(1)(i)]

- (B) Each internal floating roof shall be equipped with one of the following closure devices between the wall of the storage vessel and the edge of the internal floating roof:

[40 CFR§60.112b(a)(1)(ii)]

(I) A foam- or liquid-filled seal mounted in contact with the liquid (liquid-mounted seal). A liquid-mounted seal means a foam- or liquid-filled seal mounted in contact with the liquid between the wall of the storage vessel and the floating roof continuously around the circumference of the tank.

(II) Two seals mounted one above the other so that each forms a continuous closure that completely covers the space between the wall of the storage vessel and the edge of the internal floating roof. The lower seal may be vapor-mounted, but both must be continuous.

(III) A mechanical shoe seal. A mechanical shoe seal is a metal sheet held vertically against the wall of the storage vessel by springs or weighted levers and is connected by braces to the floating roof. A flexible coated fabric (envelope) spans the annular space between the metal sheet and the floating roof.

- (C) Each opening in a noncontact internal floating roof except for automatic bleeder vents (vacuum breaker vents) and the rim space vents is to provide a projection below the liquid surface.

[40 CFR§60.112b(a)(1)(iii)]

- (D) Each opening in the internal floating roof except for leg sleeves, automatic bleeder vents, rim space vents, column wells, ladder wells, sample wells, and stub drains is to be equipped with a cover or lid which is to be maintained in a closed position at all times (i.e., no visible gap) except when the device is in actual use. The cover or lid shall be equipped with a gasket. Covers on each access hatch and automatic gauge float well shall be bolted except when they are in use.

[40 CFR§60.112b(a)(1)(iv)]

- (E) Automatic bleeder vents shall be equipped with a gasket and are to be closed at all times when the roof is floating except when the roof is being floated off or is being landed on the roof leg supports.
[40 CFR§60.112b(a)(1)(v)]
- (F) Rim space vents shall be equipped with a gasket and are to be set to open only when the internal floating roof is not floating or at the manufacturer's recommended setting.
[40 CFR§60.112b(a)(1)(vi)]
- (G) Each penetration of the internal floating roof for the purpose of sampling shall be a sample well. The sample well shall have a slit fabric cover that covers at least 90 percent of the opening.
[40 CFR§60.112b(a)(1)(vii)]
- (H) Each penetration of the internal floating roof that allows for passage of a column supporting the fixed roof shall have a flexible fabric sleeve seal or a gasketed sliding cover.
[40 CFR§60.112b(a)(1)(viii)]
- (I) Each penetration of the internal floating roof that allows for passage of a ladder shall have a gasketed sliding cover.
[40 CFR§60.112b(a)(1)(ix)]
- (ii) A closed vent system and control device meeting the following specifications:
 - (A) The closed vent system shall be designed to collect all VOC vapors and gases discharged from the storage vessel and operated with no detectable emissions as indicated by an instrument reading of less than 500 ppm above background and visual inspections, as determined in part 60, subpart VV, §60.485(b).
[40 CFR§60.112b(a)(3)(i)]
 - (B) The control device shall be designed and operated to reduce inlet VOC emissions by 95 percent or greater. If a flare is used as the control device, it shall meet the specifications described in the general control device requirements (§60.18) of the General Provisions.
[40 CFR§60.112b(a)(3)(ii)]

4.1.6. **Truck/Barge Loadout**

The truck and barge loading operations, identified as 11S and 14S, shall be in accordance with the following requirements:

- a. All barge and truck loading operations shall be conducted using the submerged-fill method. The "submerged-fill method" shall, for the purposes of this permit, mean either bottom-filling or filling by extending the pipe to near the bottom of the tank, and as soon as is practicable, below the level of liquid;
- b. All loading operations shall be conducted with a vapor capture system installed, maintained, and operated so as to achieve a minimum capture efficiency of displaced tank vapors of 99%. All vapors captured during loading operations shall be sent, via a closed vent system, to a scrubber pursuant to the applicable requirements given under 4.1.10 below;

- c. The aggregate maximum loadout of methanol into barges shall not exceed a design capacity of 1,000 gallons/minute and shall not exceed 61,500,000 gallons/year. The aggregate maximum loadout of fusel oil shall not exceed a design capacity of 100 gallons/minute and shall not exceed 225,000 gallons/year; and
- d. The aggregate emissions of methanol vapors from loading operations shall not exceed 1.96 pounds/hour and 0.86 tons/year.

4.1.7. **Flare**

The flare, identified as 15S, shall operate according to the following requirements:

- a. The flare shall be non-assisted and shall be designed and operated according to the requirements specified in 40 CFR 60, Section §60.18;
- b. The flare shall be designed, operated, and maintained according to good engineering practices or manufacturing recommendations so as to achieve, at a minimum, a carbon monoxide and hydrocarbon combustion rate of 98.0%;
- c. The flare shall be operated with a flame present at all times, as determined by the methods specified in 4.2.2(b);
- d. The flare shall be designed for and operated with no visible emissions as determined by the methods specified in 4.3.5(a) except for periods not to exceed a total of one minute during any 15 minute period, determined on a monthly basis;
- e. The flare shall be operated at all times when emissions are vented to it and shall not combust in excess of 95.27 mmft³ of syngas per year (any gas combusted in the pilot light does not count against this limit). Syngas shall be made up primarily of hydrogen, carbon monoxide, and methane and shall contain no detectable amounts sulfur compounds or HAPs;
- f. To ensure compliance with 4.1.7(e) above, the permittee shall monitor in accordance with 4.2.2(d);
- g. The permittee shall operate and maintain the flare according to the manufacturer's specifications for operating and maintenance requirements to maintain the minimum guaranteed control efficiency listed under 4.1.7(b);
- h. The maximum combustion exhaust emissions from the flare shall not exceed the limits given in the following table;

Table 4.1.7(h): Flare Combustion Exhaust Emission Limits

Pollutant	PPH	TPY
CO	684.14	5.05
NO _x	150.07	1.11
PM _{2.5} /PM ₁₀ /PM	16.16	0.13
SO ₂	3.88	0.06
VOCs	575.82	4.32

i. **45CSR6**

The flare are subject to 45CSR6. The requirements of 45CSR6 include but are not limited to the following:

- (1) The permittee shall not cause, suffer, allow or permit particulate matter to be discharged from the flares into the open air in excess of the quantity determined by use of the following formula:

$$\text{Emissions (lb/hr)} = F \times \text{Incinerator Capacity (tons/hr)}$$

Where, the factor, F, is as indicated in Table I below:

Table I: Factor, F, for Determining Maximum Allowable Particulate Emissions

<u>Incinerator Capacity</u>	<u>Factor F</u>
A. Less than 15,000 lbs/hr	5.43

B. 15,000 lbs/hr or greater 2.72

[45CSR§6-4.1]

- (2) No person shall cause, suffer, allow or permit emission of smoke into the atmosphere from any incinerator which is twenty (20%) percent opacity or greater.
[45CSR6 §4.3]

- (3) The provisions of paragraph (i) shall not apply to smoke which is less than forty (40%) percent opacity, for a period or periods aggregating no more than eight (8) minutes per start-up.
[45CSR6 §4.4]

- (4) No person shall cause or allow the emission of particles of unburned or partially burned refuse or ash from any incinerator which are large enough to be individually distinguished in the open air.
[45CSR6 §4.5]

- (5) Incinerators, including all associated equipment and grounds, shall be designed, operated and maintained so as to prevent the emission of objectionable odors.
[45CSR6 §4.6]

- (6) Due to unavoidable malfunction of equipment, emissions exceeding those provided for in this rule may be permitted by the Director for periods not to exceed five (5) days upon specific application to the Director. Such application shall be made within twenty-four (24) hours of the malfunction. In cases of major equipment failure, additional time periods may be granted by the Director provided a corrective program has been submitted by the owner or operator and approved by the Director.
[45CSR6 §8.2]

4.1.8. **Scrubbers**

The methanol scrubbers, identified as 2C and 3C, shall operate according to the following requirements:

- a. The methanol scrubbers shall be packed-bed type and shall be designed, operated, and maintained according to good engineering practices or manufacturing recommendations so as to achieve, at a minimum, a hydrocarbon control percentage of 98.0%;

- b. The scrubbers shall be operated at all times when vapors are vented to them; and
- c. The water flow rate to the scrubbers shall be set a rate as determined by manufacturer's recommendation or site-specific testing so as achieve the minimum hydrocarbon control percentage as given under 4.1.8(a).

4.1.9. Fugitive Emissions

The permittee shall mitigate the release of fugitive emissions according to the following requirements:

- a. The permittee shall, within 180 days of facility startup, submit a modification or Class II Administrative Update, as applicable pursuant 45CSR13, to revise the number and type of components (valves, pump seals, connectors, etc.) in gas/vapor or light liquid (as applicable) listed in Attachment N of Permit Application R13-3351 or any amendments or revisions submitted thereto if the as-built number of components results in calculated VOC or HAP emissions in excess of those given under Attachment N;
- b. The permittee shall install, maintain, and operate all above-ground piping, valves, pumps, etc. that service lines in the transport of potential sources of regulated air pollutants to prevent any substantive fugitive escape of regulated air pollutants. Any above-ground piping, valves, pumps, etc. that shows signs of excess wear and that have a reasonable potential for substantive fugitive emissions of regulated air pollutants shall be replaced; and
- c. **40 CFR 60, Subpart VVa**
The permittee shall meet the applicable Leak Detection and Repair (LDAR) requirements for the methanol plant as given under 40 CFR 60, Subpart VVa.

4.1.10. Closed Vent Requirements

The permittee shall meet, where not subject to closed vent requirements under 40 CFR Part 60, the following requirements below for any closed vent system that is required by this permit:

- a. The permittee shall design and operate the closed vent system as determined following the procedures under 40 CFR 60, Subpart VVa for ongoing compliance;
- b. The permittee shall meet the requirements specified in (1) and (2) of this section if the closed vent system contains one or more bypass devices that could be used to divert all or a portion of the gases, vapors, or fumes from entering the control device or to a process;
 - (1) Except as provided in paragraph (2) of this section, you must comply with either paragraph (i) or (ii) of this section for each bypass device.
 - (i) You must properly install, calibrate, maintain, and operate a flow indicator at the inlet to the bypass device that could divert the stream away from the control device or process to the atmosphere that sounds an alarm, or initiates notification via remote alarm to the nearest field office, when the bypass device is open such that the stream is being, or could be, diverted away from the control device or process to the atmosphere; or
 - (ii) You must secure the bypass device valve installed at the inlet to the bypass device in the non-diverting position using a car-seal or a lock-and-key type configuration.

- (2) Low leg drains, high point bleeds, analyzer vents, open-ended valves or lines, and safety devices are not subject to the requirements of paragraph (i) of this section. Pressure relief valves used to protect the fluid tanks from overpressure are not subject to this section.

4.1.11. 40 CFR 60, Subpart NNN

Each owner or operator of any affected facility shall comply with paragraph (a), (b), or (c) of this section for each vent stream on and after the date on which the initial performance test required by §60.8 and §60.664 is completed, but not later than 60 days after achieving the maximum production rate at which the affected facility will be operated, or 180 days after the initial start-up, whichever date comes first. Each owner or operator shall either:

[40 CFR§60.662]

- a. Reduce emissions of TOC (less methane and ethane) by 98 weight-percent, or to a TOC (less methane and ethane) concentration of 20 ppmv, on a dry basis corrected to 3 percent oxygen, whichever is less stringent. If a boiler or process heater is used to comply with this paragraph, then the vent stream shall be introduced into the flame zone of the boiler or process heater; or
[40 CFR§60.662(a)]
- b. Combust the emissions in a flare that meets the requirements of §60.18; or
[40 CFR§60.662(b)]
- c. Maintain a TRE index value greater than 1.0 without use of VOC emission control devices.
[40 CFR§60.662(c)]

4.1.12. 40 CFR 60, Subpart RRR

Each owner or operator of any affected facility shall comply with paragraph (a), (b), or (c) of this section for each vent stream on and after the date on which the initial performance test required by §60.8 and §60.704 is completed, but not later than 60 days after achieving the maximum production rate at which the affected facility will be operated, or 180 days after the initial start-up, whichever date comes first. Each owner or operator shall either:

[40 CFR§60.702]

- a. Reduce emissions of TOC (less methane and ethane) by 98 weight-percent, or to a TOC (less methane and ethane) concentration of 20 ppmv, on a dry basis corrected to 3 percent oxygen, whichever is less stringent. If a boiler or process heater is used to comply with this paragraph, then the vent stream shall be introduced into the flame zone of the boiler or process heater; or
[40 CFR§60.702(a)]
- b. Combust the emissions in a flare that meets the requirements of §60.18; or
[40 CFR§60.702(b)]
- c. Maintain a TRE index value greater than 1.0 without use of a VOC emission control device.
[40 CFR§60.702(c)]

- 4.1.13.** The permittee shall meet all applicable requirements, including those not specified above, as given under 45CSR2, 45CSR2A, 45CSR6, 45CSR10, 40 CFR 60, Subparts Kb, NNN, and RRR. Any final revisions made to the above rules will, where applicable, supercede those specifically cited in this permit.

- 4.1.14. Operation and Maintenance of Air Pollution Control Equipment.** The permittee shall, to the extent practicable, install, maintain, and operate all pollution control equipment listed in Section 1.0

and associated monitoring equipment in a manner consistent with safety and good air pollution control practices for minimizing emissions, or comply with any more stringent limits set forth in this permit or as set forth by any State rule, Federal regulation, or alternative control plan approved by the Secretary.

[45CSR§13-5.11.]

4.2. Monitoring, Compliance Demonstration, Recording and Reporting Requirements

- 4.2.1. For the purposes of demonstrating compliance with maximum production, throughputs, and combustion limits given under in 4.1 of the permit, the permittee shall monitor and record the monthly and rolling twelve month total of the following:

Table 4.2.1: Facility Quantities Monitored/Recorded

Quantity Monitored/Recorded	Emission Unit(s)	Measured Units
Methanol Production	Facility Wide	Tons ⁽¹⁾
Methanol Production	Facility Wide	Hours of Operation ⁽²⁾
Flue Gas Produced	H-1101	ft ³⁽³⁾
Syngas Combusted	Flare	ft ³
Methanol Throughput	Storage Tanks 5S, 6S, 10S, 11S	Gallons
Fusel Oil	Storage Tank 7S	Gallons ⁽⁴⁾
Methanol Throughput	Storage Tanks 8S, 9S, 12S, 13S	Gallons
Methanol Loaded Out	Barge Loading	Gallons
Fusel Oil Loaded Out	Truck Loading	Gallons ⁽⁴⁾

- (1) Compliance with the daily methanol production limit shall be determined by dividing the monthly production rate by the hours of operation for that same month and then multiplying the result by 24.
- (2) There is no hours of operation limit, this data is used to calculate the average daily methanol production rate as described under footnote (1).
- (3) Upon approval of the Director, if a relationship can be established between syngas combusted and flue gas produced, USM may monitor fuel gas combusted instead.
- (4) Compliance with the fusel oil storage tank throughput limit may be shown by monitoring and recording the amount of fusel oil loaded out into trucks.

4.2.2. **Flare**

The permittee shall meet the following Monitoring, Compliance Demonstration, Recording and Reporting Requirements for the flare:

- a. To demonstrate compliance with 4.1.7(b), the permittee shall maintain records of the manufacturer's specifications for operating and maintenance requirements to maintain the minimum control efficiency;

- b. To demonstrate compliance with the flame requirements of 4.1.7(c), the presence of a pilot flame shall be continuously monitored using a thermocouple or any other equivalent device to detect the presence of a flame when emissions are vented to it. The pilot shall be equipped such that it sounds an alarm, or initiates notification via remote alarm to the nearest field office, when the pilot light is out;
- c. For any absence of pilot flame, or other indication of smoking or improper equipment operation, the permittee must ensure the equipment is returned to proper operation as soon as practicable after the event occurs. At a minimum, the permittee must: (1) Check the air vent for obstruction. If an obstruction is observed, you must clear the obstruction as soon as practicable. (2) Check for liquid reaching the flare;
- d. For the purpose of demonstrating compliance with the continuous pilot flame requirements in 4.1.7(c), the permittee shall maintain records of the times and duration of all periods when the pilot flame was not present and vapors were vented to the device. The permittee shall maintain records of any inspections made pursuant to 4.2.2(c); and
- e. Any bypass event of an flare must be reported in writing to the Director of the DAQ as soon as practicable, but within ten (10) calendar days, of the occurrence and shall include, at a minimum, the following information: the date of the bypass, the estimate of VOC emissions released to the atmosphere as a result of the bypass, the cause or suspected cause of the bypass, and any corrective measures taken or planned; and
- f. Any time the flare is not operating when emissions are vented to it, shall be reported in writing to the Director of the DAQ as soon as practicable, but within ten (10) calendar days of the discovery.

4.2.3. **Closed Vent Requirements**

To demonstrate compliance with the closed vent system requirements of 4.1.10, the permittee shall:

- a. **Initial requirements.** The permittee shall follow the procedures in 40 CFR 60, Subpart VVa. The initial inspection shall include the bypass inspection, conducted according to paragraph (b) of this section.
- b. **Bypass inspection.** Visually inspect the bypass valve during the initial inspection for the presence of the car seal or lock-and-key type configuration to verify that the valve is maintained in the non-diverting position to ensure that the vent stream is not diverted through the bypass device. If an alternative method is used, conduct the inspection of the bypass as described in the operating procedures.
- c. **Unsafe to inspect requirements.** You may designate any parts of the closed vent system as unsafe to inspect if the requirements in paragraphs (1) and (2) of this section are met. Unsafe to inspect parts are exempt from the inspection requirements of paragraphs (a) and (b) of this section.
 - (1) You determine that the equipment is unsafe to inspect because inspecting personnel would be exposed to an imminent or potential danger as a consequence of complying with the requirements.
 - (2) You have a written plan that requires inspection of the equipment as frequently as practicable during safe-to-inspect times.

d. To demonstrate compliance with the closed vent monitoring requirements given under paragraphs (a) through (d) above, the following records shall be maintained:

(1) The initial compliance requirements;

(2) If you are subject to the bypass requirements, the following records shall also be maintained:

(i) Each inspection or each time the key is checked out or a record each time the alarm is sounded;

(ii) Each occurrence that the control device was bypassed. If the device was bypassed, the records shall include the date, time, and duration of the event and shall provide the reason that the event occurred. The record shall also include the estimate of emissions that were released to the environment as a result of the bypass.

(3) Any part of the system that has been designated as "unsafe to inspect" in accordance with 4.2.7(d).

4.3. Performance Testing Requirements

4.3.1. At such reasonable time(s) as the Secretary may designate, in accordance with the provisions of 3.3 of this permit, the permittee shall conduct or have conducted test(s) to determine compliance with the emission limitations established in this permit and/or applicable regulations.

4.3.2. **SMR Heater H-1101 Emissions Testing**

Within 60 days after achieving the maximum methanol production rate at which the facility will be operated, but not later than 180 days after initial startup, the permittee shall conduct, or have conducted, in accordance with a protocol submitted pursuant to 3.3.1(c), a performance test on the SMR Heater H-1101 to determine compliance with the NO_x emission limit given in Table 4.1.3(a).

4.3.3. **Syngas Testing**

In order to show compliance with 4.1.7(e), within 60 days after achieving the maximum methanol production rate at which the facility will be operated, but not later than 180 days after initial startup, the permittee shall conduct, or have conducted, in accordance with a protocol submitted pursuant to 3.3.1.c., a test on the syngas that is representative of the syngas that would be sent to the flare during shutdown and sent to the flare from the Pressure Relief Valves to determine if there is any detectable sulfur compounds or HAPs in the syngas.

4.3.4. **45CSR2 Visible Emissions Testing**

Upon request by the Secretary, compliance with the visible emission requirements of 4.1.3(d)(3) and 4.1.4(d) shall be determined in accordance with 40 CFR Part 60, Appendix A, Method 9 or by using measurements from continuous opacity monitoring systems approved by the Secretary. The Secretary may require the installation, calibration, maintenance and operation of continuous opacity monitoring systems and may establish policies for the evaluation of continuous opacity monitoring results and the determination of compliance with the visible emission requirements of 4.1.6(d). Continuous opacity monitors shall not be required on fuel burning units which employ wet scrubbing systems for emission control.

[40CSR§2-3.2]

4.3.5. Flare Visible Emissions Testing

To demonstrate compliance with the visible emissions requirements of 4.1.(i), the permittee shall conduct visible emission checks and/or opacity monitoring and recordkeeping for each flare.

- a. The visible emission check shall determine the presence or absence of visible emissions. The observations shall be conducted according to Section 11 of EPA Method 22. At a minimum, the observer must be trained and knowledgeable regarding the effects of background contrast, ambient lighting, observer position relative to lighting, wind, and the presence of uncombined water (condensing water vapor) on the visibility of emissions. This training may be obtained from written materials found in the References 1 and 2 from 40CFR Part 60, Appendix A, Method 22 or from the lecture portion of the 40CFR Part 60, Appendix A, Method 9 certification course. The observation period shall be:
 - (i) a minimum of two (2) hours at initial commissioning;
 - (ii) a minimum of two (2) hours during periods of annual testing; and
 - (iii) a minimum of 15 minutes each time the flare is manually started.
- b. The visible emission check shall be conducted initially within 180 days of start-up and thereafter at a minimum of at least once per each period of 12 months. Additionally, a visible emission check shall be conducted each time the flare is manually started.

4.4. Additional Recordkeeping Requirements

4.4.1. Record of Monitoring. The permittee shall keep records of monitoring information that include the following:

- a. The date, place as defined in this permit and time of sampling or measurements;
- b. The date(s) analyses were performed;
- c. The company or entity that performed the analyses;
- d. The analytical techniques or methods used;
- e. The results of the analyses; and
- f. The operating conditions existing at the time of sampling or measurement.

4.4.2. Record of Maintenance of Air Pollution Control Equipment. For all pollution control equipment listed in Section 1.0, the permittee shall maintain accurate records of all required pollution control equipment inspection and/or preventative maintenance procedures.

4.4.3. Record of Malfunctions of Air Pollution Control Equipment. For all air pollution control equipment listed in Section 1.0, the permittee shall maintain records of the occurrence and duration of any malfunction or operational shutdown of the air pollution control equipment during which excess emissions occur. For each such case, the following information shall be recorded:

- a. The equipment involved.
- b. Steps taken to minimize emissions during the event.

- c. The duration of the event.
- d. The estimated increase in emissions during the event.

For each such case associated with an equipment malfunction, the additional information shall also be recorded:

- e. The cause of the malfunction.
 - f. Steps taken to correct the malfunction.
 - g. Any changes or modifications to equipment or procedures that would help prevent future recurrences of the malfunction.
- 4.4.4. For the purpose of demonstrating compliance with the visible emissions and opacity requirements, the permittee shall maintain records of the visible emission opacity tests and checks. The permittee shall maintain records of all monitoring data required by 4.3.4 and 4.3.5 documenting the date and time of each visible emission check, the emission point or equipment/ source identification number, the name or means of identification of the observer, the results of the check(s), whether the visible emissions are normal for the process, and, if applicable, all corrective measures taken or planned. The permittee shall also record the general weather conditions (i.e. sunny, approximately 80°F, 6-10 mph NE wind) during the visual emission check(s). Should a visible emission observation be required to be performed per the requirements specified in Method 9, the data records of each observation shall be maintained per the requirements of Method 9. For an emission unit out of service during the evaluation, the record of observation may note "out of service" (O/S) or equivalent.

4.5. Additional Reporting Requirements

- 4.5.1. Any deviation of the allowable visible emission requirement for any emission source discovered during observation using 40CFR Part 60, Appendix A, Method 9 per 4.3.4 or 4.3.5 must be reported in writing to the Director of the DAQ as soon as practicable, but within ten (10) calendar days, of the occurrence and shall include, at a minimum, the following information: the results of the visible determination of opacity of emissions, the cause or suspected cause of the violation(s), and any corrective measures taken or planned.

CERTIFICATION OF DATA ACCURACY

I, the undersigned, hereby certify that, based on information and belief formed after reasonable inquiry, all information contained in the attached _____, representing the period beginning _____ and ending _____, and any supporting documents appended hereto, is true, accurate, and complete.

Signature¹

(please use blue ink)

Responsible Official or Authorized Representative

Date

Name and Title

(please print or type)

Name

Title

Telephone No. _____

Fax No. _____

¹ This form shall be signed by a "Responsible Official." "Responsible Official" means one of the following:

- a. For a corporation: The president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy or decision-making functions for the corporation, or a duly authorized representative of such person if the representative is responsible for the overall operation of one or more manufacturing, production, or operating facilities applying for or subject to a permit and either:
 - (i) the facilities employ more than 250 persons or have a gross annual sales or expenditures exceeding \$25 million (in second quarter 1980 dollars), or
 - (ii) the delegation of authority to such representative is approved in advance by the Director;
- b. For a partnership or sole proprietorship: a general partner or the proprietor, respectively;
- c. For a municipality, State, Federal, or other public entity: either a principal executive officer or ranking elected official. For the purposes of this part, a principal executive officer of a Federal agency includes the chief executive officer having responsibility for the overall operations of a principal geographic unit of the agency (e.g., a Regional Administrator of USEPA); or
- d. The designated representative delegated with such authority and approved in advance by the Director.



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ENGINEERING EVALUATION / FACT SHEET

BACKGROUND INFORMATION

Application No.:	R13-3351
Plant ID No.:	039-00669
Applicant:	US Methanol LLC
Facility Name:	Liberty One Methanol Plant
Location:	Institute, Kanawha County
SIC/NAICS Code:	2869/325199
Application Type:	Construction
Received Date:	November 28, 2016
Engineer Assigned:	Joe Kessler
Fee Amount:	\$2,000
Date Received:	November 29, 2016
Complete Date:	December 21, 2016
Due Date:	March 21, 2017
Applicant's Ad Date:	November 29, 2016
Newspaper:	<i>Charleston Gazette-Mail</i>
UTM's:	431.696 km Easting • 4,249.108 km Northing • Zone 17
Latitude/Longitude:	38.38766/-81.78122
Description:	Construction of a 580 tons/day natural gas-to-methanol plant.

Entire Document
NON-CONFIDENTIAL

DESCRIPTION OF PROCESS

US Methanol LLC (USM) is proposing to construct a 580 tons-methanol/day natural gas-to-methanol plant in a portion of the Dow Chemical Company (Dow) facility located in Institute, Kanawha County, WV. The process sections of the plant (reformers, air separation unit, methanol synthesis, and methanol distillation) are existing and shall be purchased and moved from a location near Rio De Janeiro, Brazil. Other portions of the plant (storage tanks, loading racks, etc.) are being constructed new at the facility. USM has purchased the property where the proposed facility will be located and there is no corporate or management affiliation with Dow.

The facility will receive up to a maximum of 15.35 mmft³/day of pipeline natural gas and , after compression in electric compressor engines, convert it first into raw synthetic gas (syngas) in

Promoting a healthy environment.

the 310 tons-Methanol/day Steam Reforming Unit (SMR - Unit 1000) and the 270 tons-Methanol/day Auto Thermal Reforming Unit (ATR - Unit-10000). Heat is provided in the reforming units by gas-fired heaters: a large heater (103.0 mmBtu/hr) for the SMR (1S) and a small pre-heater (3.331 mmBtu/hr) for the ATR (2S). The SMR heater (Heater H-1101) is fired by natural gas on startup and then switches to combustion of hydrogen-rich syngas during normal operations. The ATR heater (Heater H-10101) is always fired on natural gas.

Additionally, during startup, raw syngas (not yet of sufficient quality to synthesize into methanol) from the SMR is combusted in a non-assisted 145 feet high elevated flare (15S, 4C). There are no startup emissions generated in the ATR. USM has estimated a maximum of fifteen (15) hours of startup flaring operations per year. During shutdown operations (when the facility would go from full operation to a cold stop), when the pressure in the system drops to a certain level, all remaining syngas is vented to the flare from various points in the process. USM has estimated a maximum of nine (9) hours of shutdown flaring operations per year.

Raw syngas from both the SMR and ATR are sent to the Methanol Synthesis Unit (3S: MSU - Unit 2000). In the MSU, syngas is compressed using four electric compressors before entering the three methanol converters (in series). Each converter uses seventeen (17) cubic meters of methanol synthesis catalyst that, under proper temperature and pressure conditions, convert the raw syngas into crude methanol.

From the MSU, the crude methanol is sent to the Methanol Distillation Unit (4S: MDU - Unit 3000). Crude methanol enters the distillation unit with a composition of about 75% methanol, 24% water, and some dissolved gases. The MDU is a high thermal-efficiency, three-column system capable of distilling from the crude methanol feedstock approximately 580 tons-methanol/day using standard distillation column techniques. Purge gas removed from the crude methanol leaving the column overheads is sent back to the reformer feed stream for re-processing. Undesirable liquids are removed from the columns and either recycled or sent to the appropriate storage tank. The final pure methanol product leaves with a purity of 99.959% with 0.028% water and 0.013% ethanol.

There are eight (8) storage tanks proposed for the facility. The tanks will be located in two distinct areas of the plant: "Area 4," which is storage located at the main plant area and "Area 12," which is the barge loading storage area. Area 4 has the following tanks: two (2) 75,000 gallon run-down tanks (5S, 6S), which are where the methanol first enters after leaving the MDU, one (1) 12,000 gallons fusel oil tank (7S), two (2) 1,200,000 gallons methanol sales storage tanks (8S, 9S), and a 150,000 gallons slop tank for off-grade methanol (10S). Area 12 has two (2) 1,200,000 gallons methanol loading tanks (12S, 13S) in the barge loading area. The tanks in Area 12 will not be installed during the initial facility construction and will be constructed at a later date. Therefore, barges will be loaded directly from Area 4 tanks until Area 12 tanks are installed. The product and sales methanol tanks will be equipped with internal floating roofs and vapors from all storage tanks are controlled by standard packed-bed water scrubbers (2C - Area 4, 3C - Area 12).

Methanol will be shipped via barge on the Kanawha River from Area 4 and then, later when constructed, the methanol product tanks in Area 12. The maximum methanol loadout rate is estimated to be 1,000 gallons/minute and 61,500,000 gallons/year. Fusel oil (a mixture of several

by-product alcohols) will be loaded to trucks for shipment off-site from Area 4 at a maximum rate of 100 gallons/minute and 225,000 gallons/year. Barge and Truck Loading emissions are both controlled by standard packed-bed water scrubbers (2C and 3C, respectively).

Additionally, located at the site is a 160 ton/day Air Separation Unit (ASU). This unit will supply pure oxygen to the ATR and will also produce 430 ton/day of pure nitrogen for various purging operations. There are no sources of air emissions in the ASU.

Startup steam, water, electric, and wastewater treatment activities will be purchased from other facilities. Firewater service will be supplied by Dow's existing water system; therefore, no fire pumps (with engines) are required. There are also no emergency generators proposed for the facility. The facility will have a separate gated entrance for plant operators but visitors and deliveries will come through Dow's existing security system.

SITE INSPECTION

On January 12, 2017, the writer conducted an inspection of the proposed location of the Liberty One Methanol Plant. The proposed site is located in the northwest portion of the Dow facility located in Institute, Kanawha County, WV. The writer was accompanied on the inspection by Mr. Richard Wolfli, Chief Operating Officer of USM, and Mr Jeff Beverly, also an employee of USM. Observations from the inspection include:

- The proposed facility will be located in "Area 4" (and, possibly in the future, Area 12) of the Dow's Institute facility. With the exception of several small buildings, no significant demolition activities will be required to prepare the Area 4 site. This location - which is being purchased from Dow by USM - is bounded on the north by State Route (SR) 25, and on all other sides by Dow owned property;
- At the time of the inspection, there was no significant activity on-going at the site and it appeared no significant activity had yet taken place preparing the site for construction; and
- The occupied residences located nearest to the proposed site are approximately 0.50 miles east of the proposed site across SR 25. A structure that looks like it used to be a single family home is located approximately 0.25 west of the proposed site of the facility across of SR 25. However, it appears to now be used as part of a business. WV State University lies just east of the Dow Institute facility and will be approximately 0.75 miles east of the proposed USM facility.

Directions: [Latitude: 38.38766, Longitude: -81.78.122] From the Institute exit (Exit 50) on I-64, merge right onto SR 25 West. Travel approximately 0.50 miles to the new (as yet not constructed) facility access road on the left.

AIR EMISSIONS AND CALCULATION METHODOLOGIES

USM included in Attachment N of the permit application air emissions calculations for the proposed Liberty One Methanol Plant. The following will summarize the calculation methodologies used by USM to calculate the potential-to-emit (PTE) of the proposed facility.

SMR/ATR Heaters

Natural Gas Combustion

During start-up of the 103.00 mmBtu/hr SMR Heater (1E: estimated to be a maximum of 15 hours/year), and at all times the 3.31 mmBtu/hr ATR Heater is operating (2E: both start-up and steady-state), the units will combust natural gas. Combustion emissions from the heaters when combusting natural gas were based on the emission factors provided for natural gas combustion as given in AP-42 Section 1.4. Maximum hourly emissions were based on the maximum design heat input (MDHI) of the units and a natural gas heat content value of 1,020 Btu/ft³ was used in the calculations. As the ATR Heater only combusts natural gas, the PTE of the unit was based on operation (while combusting natural gas) for 8,760 hours/year.

Syngas Combustion

After start-up is completed, the SMR will begin to combust hydrogen-rich syngas with natural gas until finally converting to combustion of all syngas. USM calculated the potential emissions (1E) from the combustion of all syngas in the 103.00 mmBtu/hr SMR heater (containing thirty-five (35) individual 2.94 mmBtu/hr burners) based on calculations provided from Lanemark Combustion Engineering Limited: the company that is replacing the burners on the unit after transfer from Brazil. According to information in the permit application, the SMR heater “employs optimized heat transfer designs, advanced low-NO_x burners, and employs controlled excess air forced inlet flow and draft flows to minimize NO_x emissions eliminating the need for fuel gas treatment.”

Based on information from Lanemark, the emissions of NO_x and CO (the primary pollutants produced from combustion of the syngas) will not exceed 110 ppm_v and 20 ppm_v, respectively. Emissions of VOCs and particulate matter are expected to be small and are based on an emission factor of 0.312 lb/mmft³-flue gas. As there are no sulfur compounds in the syngas (it is important to note that the feedstock natural gas will not contain mercaptan), there will be no emissions of SO₂ from the combustion of the syngas. All hourly emissions are based on the heater operating at maximum hourly capacity.

SMR Heater PTE

The hourly PTE of the SMR Heater was based on the worst-case hourly emissions by pollutant and the annual PTE was based on operation of the unit for 8,760 hours/year. In calculating the PTE in this manner, the emission limits represent the worst-case emissions of the unit regardless of the fuel being combusted.

Flaring

As noted above, flaring (5E) occurs during the following situations:

- During cold startup (before syngas of sufficient quality is produced), at first natural gas and then produced syngas is sent to the flare for destruction. This scenario occurs a maximum of fifteen (15) hours per year. To estimate emissions during this scenario, USM estimated that all the flared gas was natural gas and based the calculations on emission factors obtained from AP-42, Section 1.4 (particulate matter, SO₂, and Hazardous Air Pollutants (HAPs)) and AP-42, Section 13.5 (CO, NO_x, and VOCs). Hourly emissions were based on the expected maximum flow rate of the gas of 300,000 ft³/hr and a natural gas heat content of 1,020 Btu/ft³. Annual emissions were based on a maximum of fifteen (15) hours/year of startup flaring;
- During plant shutdown, as the various processes are purged with nitrogen, the syngas remaining in the system is sent to the flare for destruction. This scenario occurs a maximum of nine (9) hours per year. To estimate emissions during this scenario, USM based the calculations on emission factors again obtained from AP-42, Section 1.4 (particulate matter and SO₂) and AP-42, Section 13.5 (CO, NO_x). As the syngas does not contain any substantive amounts of VOCs, there was no estimate of emissions for pass-through VOCs or HAPs. Hourly emissions were based on the expected maximum flow rate of the gas of 300,000 ft³/hr and a syngas heat content of 273 Btu/ft³. Annual emissions were based on a maximum of nine (9) hours/year of startup flaring; and
- In addition to the above, four (4) plant pressure relief valves (PRV) that service syngas lines are connected to the flare. In the event of an over-pressure event, these PRVs will release syngas and it will be captured and sent to the flare for destruction. While these events should be rare, USM conservatively estimated a maximum of fifteen (15) hours per year of syngas flaring occurring during PRV events. To estimate emissions during this scenario, USM based the calculations on emission factors again obtained from AP-42, Section 1.4 (particulate matter and SO₂) and AP-42, Section 13.5 (CO, NO_x). As the syngas does not contain any substantive amounts of VOCs, there was no estimate of emissions for pass-through VOCs or HAPs. Hourly emissions were based on the expected maximum flow rate of the gas of each of the PRVs and an estimated syngas heat content that varies depending on the PRV source. Annual emissions were based on a maximum of fifteen (15) hours/year of startup flaring;

The emissions generated by the flare's 0.0255 mmBtu/hr natural-gas pilot light are considered negligible. Additionally, while PRVs in the natural gas and methanol systems are also hooked up to the flare, due to the low volume of gas potentially sent to the flare for destruction from these PRVs, combustion emissions from these sources are considered negligible. However, VOC pass-through emissions from these sources are included in the fugitive emission calculations for component leaks.

Storage Tanks

USM provided an estimate of the uncontrolled and controlled VOC emissions produced from each of the storage tanks using the TANKS 4.09d program as provided under AP-42, Section 7. The total emissions from each fixed roof storage tank are the combination of the calculated “breathing loss” and “working loss.” The breathing loss refers to the loss of vapors as a result of tank vapor space breathing (resulting from temperature and pressure differences) that occurs continuously when the tank is storing liquid. The working loss refers to the loss of vapors as a result of tank filling or emptying operations. Breathing losses are independent of storage tank throughput while working losses are dependent on throughput. The total emissions losses from each floating roof are the combination of the calculated “rim seal,” “withdrawal,” “deck fitting,” and “deck seam” losses.

Maximum hourly emissions (not calculated by TANKS) were based on a maximum of one (1) complete tank turnover per hour. Annual emissions were as calculated by the TANKS program and based on specific maximum throughputs of each tank. As vapors from all storage tanks are captured and sent to a scrubber (3E and 4E) for control, the controlled emissions from the storage tanks were based on a scrubber control percentage of 98%.

Truck/Barge Loadouts

Uncontrolled VOC emissions from barge loading of methanol and truck loading of fusel oil occur as emissions generated by displacement of vapors when loading barges/trucks. The emission factors used to generate the VOC emissions is based on Equation (1) of AP-42 Section 5.2-4. In this equation, USM used variables specific to the liquids loaded and to the method of loading. Additionally, worst-case annual emissions were based on a maximum loading rate of 61,500,00 gal/year of methanol and 225,000 gal/year of fusel oil. Maximum hourly emissions for barge and truck loading were based on a maximum loading rate of 100 and 1,000 gallons/minute, respectively. As vapors from all loading operations are captured and sent to a scrubber (3E and 4E) for control, the controlled emissions from the loading operations were based on a hood collection efficiency of 99% and a scrubber control percentage of 98%.

Fugitives

Equipment Leaks

USM based their uncontrolled VOC fugitive equipment leak calculations on emission factors taken from the document EPA-453/R-95-017 - “Protocol for Equipment Leak Emission Estimates” Table 2-5. No control efficiencies, as based on a Leak Detection and Repair (LDAR) protocol, were applied. However, the emission factors used assume an LDAR screening threshold of 10,000 ppm, Component counts were given and shall be limited in the draft permit. VOC by-weight percentages were based on the lines being serviced by the components. Controlled emissions from PRVs that are captured and sent to the flare are based on a flare control percentage of 98%.

Vehicle Activity

USM included in their application an estimate of fugitive emissions created by truck traffic (fusel oil loading and other miscellaneous trucking) at the facility. As all the roadways around the

building shall be paved, USM used the equation given in Section 13.2.1 of AP-42 and appropriate variables to estimate potential emissions.

Emissions Summary

Based on the above estimation methodology as submitted in Attachment N of the permit application, the facility-wide PTE of the proposed Liberty One Methanol Plant is given in Attachment A.

REGULATORY APPLICABILITY

The proposed Liberty One Methanol Plant is subject to the following substantive state and federal air quality rules and regulations: 45CSR2, 45CSR6, 45CSR7, 45CSR10, 45CSR13, and 40 CFR 60 Subparts Kb, VVa, NNN, and RRR. Each applicable rule and USM's compliance therewith will be discussed in detail below.

45CSR2: To Prevent and Control Particulate Air Pollution from Combustion of Fuel in Indirect Heat Exchangers

Pursuant to the definition of “fuel burning unit” under 45CSR2 (“producing heat or power by indirect heat transfer”), 45CSR2 will apply to the proposed 103.00 mmBtu/hr SMR Heater and the 3.31 mmBtu/hr ATR Heater and they are, therefore, subject to the applicable requirements therein. However, pursuant to the exemption given under §45-2-11, as the MDHI of the ATR Heater is less than 10 mmBtu/hr, the unit is not subject to sections 4, 5, 6, 8 and 9 of 45CSR2. The only remaining substantive requirement is under Section 3.1 - Visible Emissions Standards. Each substantive 45CSR2 requirement is discussed below.

45CSR2 Opacity Standard - Section 3.1

Pursuant to 45CSR2, Section 3.1, both heaters are subject to an opacity limit of 10%. Proper maintenance and operation of the heaters (and the use of natural gas/syngas as fuel) should keep the opacity of the units well below 10% during normal operations.

45CSR2 Weight Emission Standard - Section 4.1(b)

The allowable particulate matter (non-condensable total particulate matter) emission rate for the SMR Heater, identified as a Type “b” fuel burning unit, per 45CSR2, Section 4.1.a, is the product of 0.09 and the total design heat input of the heater in million Btu per hour. The maximum aggregate design heat input (short-term) of the SMR Heater will be 103.00 mmBtu/hr. Using the above equation, the 45CSR2 particulate matter emission limit of the heater will be 10.17 lb/hr. The maximum potential hourly PM emissions (including condensables) from the heater is estimated to be 0.77 lb/hr. This emission rate is 7.57% of the 45CSR2 limit.

45CSR2 Testing, Monitoring, Record-keeping, & Reporting (TMR&R) - Section 8

Section 8 of Rule 2 requires testing for initial compliance with the limits therein, monitoring for continued compliance, and keeping records of that compliance. The TMR&R requirements are clarified under 45CSR2A and discussed below.

45CSR2A Applicability - Section 3

Pursuant to §45-2A-3, as an individual applicable “fuel burning unit” under 45CSR2 with an MDHI less than 100 mmBtu/hr, the ATR Heater is not subject to the Testing and MRR Requirements under 45CSR2A. Additionally, pursuant to §45-2A-3.1(a), a “fuel burning unit(s) which combusts only natural gas shall be exempt from sections 5 and 6.” Per the Director's discretion, as the SMR Heater only combusts natural gas and syngas (made from natural gas) with a very low potential for particulate matter emissions, the unit will be exempt from sections 5 and 6. The SMR Heater must, however, meet the applicable record-keeping and reporting requirements under Section 7.

45CSR6: To Prevent and Control Particulate Air Pollution from Combustion of Refuse

USM has proposed flaring for control of various waste gas streams (see above). The flare meets the definition of an “incinerator” under 45CSR6 and is, therefore, subject to the requirements therein. The substantive requirements applicable to the enclosed flare are discussed below.

45CSR6 Emission Standards for Incinerators - Section 4.1

Section 4.1 limits PM emissions from incinerators to a value determined by the following formula:

$$\text{Emissions (lb/hr)} = F \times \text{Incinerator Capacity (tons/hr)}$$

Where, the factor, F, is as indicated in Table I below:

Table I: Factor, F, for Determining Maximum Allowable Particulate Emissions

<u>Incinerator Capacity</u>	<u>Factor F</u>
A. Less than 15,000 lbs/hr	5.43
B. 15,000 lbs/hr or greater	2.72

Based on the flare's maximum listed hourly flow rate in the emissions calculations of 31,222 scfm (1,873,298 ft³/hour), and using the density of methane (0.0422 lb/scf), the maximum capacity of the flare in lbs/hr would be, at a minimum, approximately 79,053 lbs/hour (39.53 tons/hr). Using this value in the above equation produces a PM emission limit of 107.51 lb/hr. When operating correctly, there is expected to be only trace amounts of particulate matter from the flare and, therefore, the flare shall easily meet this limit. However, to be conservative, and using natural gas emission factors, USM estimated that up to a worst-case of 16.16 lbs/hour of particulate matter emissions could be emitted during flaring. This is far below the 45CSR6 limit.

45CSR6 Opacity Limits for - Section 4.3, 4.4

Pursuant to Section 4.3, and subject to the exemptions under 4.4, the flare will have a 20% limit on opacity during operation. Proper design and operation of the flare should prevent any substantive opacity from the unit.

45CSR10: To Prevent and Control Air Pollution from the Emission of Sulfur Oxides

45CSR10 has requirements limiting SO₂ emissions from “fuel burning units,” limiting in-stack SO₂ concentrations of “manufacturing processes,” and limiting H₂S concentrations in process gas streams. Both the SMR Heater and ATR Heater are defined as a “fuel burning unit” (“producing heat or power by indirect heat transfer”) under 45CSR10 and are, therefore, potentially subject to the applicable requirements therein. However, pursuant to the exemption given under §45-10-10.1, as the MDHI of the ATR Heater is less than 10 mmBtu/hr, the unit is not subject to the limitations on fuel burning units under 45CSR10.

45CSR10 Fuel Burning Units - Section 3

The allowable SO₂ emission rate for the SMR Heater (located in Region III), identified as a Type “b” fuel burning unit, per 45CSR10, Section 3.3(f), is the product of 3.2 and the total design heat input of the heater in million Btu per hour. The maximum aggregate design heat input (short-term) of the heater will be 103.00 mmBtu/hr. Using the above equation, the 45CSR10 SO₂ emission limit of the heater will be 361.60 lb/hr. The maximum potential hourly SO₂ emissions from the heater is estimated to be 0.06 lb/hr (during startup operations when combusting natural gas). This emission rate is only a trace of the 45CSR10 limit.

45CSR10 Process Gas Stream Combustion - Section 5

Section 5.1 of 45CSR10 prohibits the combustion of any “refinery process gas stream” that contains H₂S in excess of 50 grains for every 100 cubic feet of tail gas consumed. The syngas stream that is combusted in the SMR Heater could be defined as a refinery process gas stream. However, according to information in the permit application, after the de-sulfurization process applied to the feedstock natural gas (which does not contain mercaptan), there is no measurable amount of H₂S in the syngas stream.

45CSR10 Testing, Monitoring, Record-keeping, & Reporting (TMR&R) - Section 8

Section 8 of Rule 10 requires to test for initial compliance with the limits therein, monitor for continued compliance, and keep records of that compliance. The TMR&R requirements are clarified under 45CSR10A and discussed below.

45CSR10A Applicability - Section 3

Pursuant to §45-10-3, as an individual applicable “fuel burning unit” under 45CSR10 with an MDHI less than 100 mmBtu/hr, the ATR Heater is not subject to the Testing and MRR Requirements under 45CSR10A. Pursuant to §45-10A-3.1(b), for heaters that combust “natural gas,

wood or distillate oil, alone or in combination,” the units are not subject to the Testing and MRR Requirements under 45CSR10A. Similar to the discussion above under the 45CSR2, per the Director's discretion, as the SMR Heater only combust natural gas and syngas cleaned of any substantive amount of sulfur compounds, no SO₂-specific testing, monitoring or record-keeping of the cracking furnaces will be required.

45CSR13: Permits for Construction, Modification, Relocation and Operation of Stationary Sources of Air Pollutants, Notification Requirements, Administrative Updates, Temporary Permits, General Permits, and Procedures for Evaluation

The proposed construction of the Liberty One Methanol Plant has the potential to emit a regulated pollutant in excess of six (6) lbs/hour and ten (10) TPY (see Attachment A) and, therefore, pursuant to §45-13-2.24, the proposed facility is defined as a “stationary source” under 45CSR13. Pursuant to §45-13-5.1, “[n]o person shall cause, suffer, allow or permit the construction . . . and operation of any stationary source to be commenced without . . . obtaining a permit to construct.” Therefore, USM is required to obtain a permit under 45CSR13 for the construction and operation of the proposed facility.

As required under §45-13-8.3 (“Notice Level A”), USM placed a Class I legal advertisement in a “newspaper of *general circulation* in the area where the source is . . . located.” The ad ran on November 29, 2016 in the *Charleston Gazette-Mail* and the affidavit of publication for this legal advertisement was submitted on December 5, 2016.

45CSR14: Permits for Construction and Major Modification of Major Stationary Sources of Air Pollution for the Prevention of Significant Deterioration - (NON APPLICABILITY)

The proposed Liberty One Methanol Plant is a source listed under §45-14-2.43.a (Chemical Process Plants) and, therefore pursuant to 2.43.b., is defined as a “major stationary source” if any regulated pollutant has a potential-to-emit in excess of 100 TPY. The facility does not have a potential-to-emit of any regulated pollutant in excess of 100 TPY and is, therefore, not defined as a major stationary source and is not subject to the provisions of 45CSR14.

45CSR30: Requirements for Operating Permits

45CSR30 provides for the establishment of a comprehensive air quality permitting system consistent with the requirements of Title V of the Clean Air Act. The proposed Liberty One Methanol Plant does not meet the definition of a “major source under §112 of the Clean Air Act” as outlined under §45-30-2.26 and clarified (fugitive policy) under 45CSR30b. The proposed facility-wide PTE (see Attachment A) of any regulated pollutant does not exceed 100 TPY. Additionally, the facility-wide PTE does not exceed 10 TPY of any individual HAP or 25 TPY of aggregate HAPs.

However, as the facility is subject to various New Source Performance Standards (NSPS) - 40 CFR 60, Subpart Dc that do not contain a Title V permitting exemption, the proposed facility is

subject to Title V as a non-major source. Non-major sources subject to Title V, pursuant to DAQ policy, are deferred from having to submit a Title V application but still pay annual fees pursuant to submission of a Certified Emissions Sheet (CES).

40 CFR 60, Subpart Db: Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units - (NON APPLICABILITY)

40 CFR 60 Subpart Dc is the New Source Performance Standard (NSPS) for industrial-commercial-institutional steam generating units for which construction, modification, or reconstruction is commenced after June 19, 1984 and that have a maximum design heat input capacity greater than 100 mmBtu/hr. The definition of "steam generating unit," however, specifically exempts "process heaters." The definition of process heaters means "a device that is primarily used to heat a material to initiate or promote a chemical reaction in which the material participates as a reactant or catalyst." The SMR Heater meets this definition of a process heater and is, therefore, not subject to Subpart Db.

40 CFR 60, Subpart Kb: Standards of Performance for Volatile Organic Liquid Storage Vessels (Including Petroleum Liquid Storage Vessels) for Which Construction, Reconstruction, or Modification Commenced After July 23, 1984

Subpart Kb of 40 CFR 60 is the NSPS for storage tanks containing Volatile Organic Liquids (VOLs) which construction commenced after July 23, 1984. The Subpart applies to storage vessels used to store volatile organic liquids with a capacity greater than or equal to 75 m³ (19,813 gallons). However, storage tanks with a capacity greater than or equal to 151 m³ (39,890 gallons) storing a liquid with a maximum true vapor pressure less than 3.5 kilopascals (kPa) or with a capacity greater than or equal to 75 m³ but less than 151 m³ storing a liquid with a maximum true vapor pressure less than 15.0 kPa are exempt from Subpart Kb.

USM is proposing eight (8) storage tanks for the facility. The tanks will be located in two distinct areas of the plant: "Area 4," which is storage located at the main plant area and "Area 12," which is the barge loading storage area. Area 4 has the following tanks: two (2) 75,000 gallon run-down tanks which are where the methanol first enters after leaving the MDU, one (1) 12,000 gallons fusel oil tank, two (2) 1,200,000 gallons methanol sales storage tanks, and a 150,000 gallons slop tank for off-grade methanol. Area 12 will have two (2) 1,200,000 gallons methanol loading tanks in the barge loading area. The tanks in Area 12 will not be installed during the initial facility construction and will be constructed at a later date. Methanol and the other derivative liquids are defined as VOLs and have vapor pressures in excess of 3.5 kPa (and less than 76.6 kPa) and, with the exception of the fusel oil tank, all storage tanks are larger than 39,890 gallons. Therefore, all storage tanks, with the exception of the fusel oil tank, are subject to the VOC standards as given under §60.112b.

Pursuant to §60.112b(a), Subpart Kb requires storage tanks with capacities in excess of 39,890 gallons and which store a VOL with a vapor pressure between 5.2 kPa and 76.6 kPa to comply with one of three control options:

- (1) A fixed roof in combination with an internal floating roof;
- (2) An external floating roof; or
- (3) A closed vent system and control device designed and operated to reduce inlet VOC emissions by 95 percent or greater.

USM has proposed to meet these requirements by installing internal floating roofs for the Sales and Product methanol tanks and venting vapors from all storage tanks to scrubbers designed to remove a minimum of 98% of VOC emissions from the inlet VOC stream.

40 CFR 60, Subpart VVa: Standards of Performance for Equipment Leaks of VOC in the Synthetic Organic Chemicals Manufacturing Industry for Which Construction, Reconstruction, or Modification Commenced After November 7, 2006

Subpart VVa applies to "affected facilities in the synthetic organic chemicals manufacturing industry." "Synthetic organic chemicals manufacturing industry" is defined in VVa as an "industry that produces, as intermediates or final products, one or more of the chemicals listed in §60.489." §60.489 lists methanol as an applicable product.

Subpart VVa contains Leak Detection and Repair (LDAR) requirements for all affected facilities at the proposed facility; these affected facilities are defined under Subpart VVa as "the components assembled and connected by pipes or ducts to process raw materials and . . . includes any feed, intermediate and final product storage vessels (except as specified in §60.482–1a(g)), product transfer racks, and connected ducts and piping." USM will be required to meet the various applicable standards under VVa.

40 CFR, 60, Subpart NNN: Standards of Performance for Volatile Organic Compound (VOC) Emissions From the Synthetic Organic Chemical Manufacturing Industry (SOCMI) Distillation Operations

Pursuant to §60.660, 40 CFR 60, Subpart NNN applies to "each affected facility designated in paragraph (b) of this section that is part of a process unit that produces any of the chemicals listed in §60.667 as a product, co-product, by-product, or intermediate, except as provided in paragraph (c)." The chemicals listed in §60.667 include methanol and, therefore, Subpart NNN applies to the proposed USM facility (which includes a distillation unit). The substantive requirements of Subpart NNN are given under §60.662 and apply to "each vent stream on and after the date on which the initial performance test required by §60.8 and §60.664 is completed." Vent stream is defined as "any gas stream discharged directly from a distillation facility to the atmosphere or indirectly to the atmosphere after diversion through other process equipment. The vent stream excludes relief valve discharges and equipment leaks including, but not limited to, pumps, compressors, and valves. The requirements under §60.662 are to:

- (a) Reduce emissions of TOC (less methane and ethane) by 98 weight-percent, or to a TOC (less methane and ethane) concentration of 20 ppmv, on a dry basis corrected

to 3 percent oxygen, whichever is less stringent. If a boiler or process heater is used to comply with this paragraph, then the vent stream shall be introduced into the flame zone of the boiler or process heater;

- (b) Combust the emissions in a flare that meets the requirements of §60.18; or
- (c) Maintain a TRE index value greater than 1.0 without use of VOC emission control devices.

The vented syngas streams are considered a “vent stream” under Subpart NNN and subject to one of the requirements under §60.662(a) through (c). USM has proposed compliance with the above requirements by combusting excess syngas in the SMR heater (during steady-state operations) and flare (during start-up/shutdown operations). All other vent streams are recycled back into the reformer feed lines for processing.

40 CFR 60, Subpart RRR: Standards of Performance for Volatile Organic Compound Emissions From Synthetic Organic Chemical Manufacturing Industry (SOCMI) Reactor Processes

Pursuant to §60.700, 40 CFR 60, Subpart RRR applies to “each affected facility designated in paragraph (b) of this section that is part of a process unit that produces any of the chemicals listed in §60.707 as a product, co-product, by-product, or intermediate, except as provided in paragraph (c).” The chemicals listed in §60.667 include methanol and, therefore, Subpart RRR applies to the proposed USM facility. The substantive requirements of Subpart RRR are given under §60.702 and apply to “each vent stream on and after the date on which the initial performance test required by §60.8 and §60.704 is completed.” Vent stream is defined as “any gas stream discharged directly from a distillation facility to the atmosphere or indirectly to the atmosphere after diversion through other process equipment. The vent stream excludes relief valve discharges and equipment leaks including, but not limited to, pumps, compressors, and valves. The requirements under §60.702 are to:

- (a) Reduce emissions of TOC (less methane and ethane) by 98 weight-percent, or to a TOC (less methane and ethane) concentration of 20 ppmv, on a dry basis corrected to 3 percent oxygen, whichever is less stringent. If a boiler or process heater is used to comply with this paragraph, then the vent stream shall be introduced into the flame zone of the boiler or process heater;
- (b) Combust the emissions in a flare that meets the requirements of §60.18; or
- (c) Maintain a TRE index value greater than 1.0 without use of VOC emission control devices.

The vented syngas streams are considered a “vent stream” under Subpart RRR and subject to one of the requirements under §60.662(a) through (c). USM has proposed compliance with the above requirements by combusting excess syngas in the SMR heater (during steady-state operations) and flare (during start-up/shutdown operations). All other vent streams are recycled back into the reformer feed lines for processing.

TOXICITY OF NON-CRITERIA REGULATED POLLUTANTS

This section provides an analysis for those regulated pollutants that may be emitted from the proposed Liberty One Methanol Plant and that are not classified as “criteria pollutants.” Criteria pollutants are defined as Carbon Monoxide (CO), Lead (Pb), Oxides of Nitrogen (NO_x), Ozone, Particulate Matter (PM₁₀ and PM_{2.5}), and Sulfur Dioxide (SO₂). These pollutants have National Ambient Air Quality Standards (NAAQS) set for each that are designed to protect the public health and welfare. Other pollutants of concern, although designated as non-criteria and without national concentration standards, are regulated through various federal programs designed to limit their emissions and public exposure. These programs include federal source-specific Hazardous Air Pollutants (HAPs) limits promulgated under 40 CFR 61 (NESHAPS) and 40 CFR 63 (MACT). Any potential applicability to these programs were discussed above under REGULATORY APPLICABILITY.

The majority of non-criteria regulated pollutants fall under the definition of HAPs which, with some revision since, were 188 compounds identified under Section 112(b) of the Clean Air Act (CAA) as pollutants or groups of pollutants that EPA knows or suspects may cause cancer or other serious human health effects. According to information in the permit application, the only HAP that will be emitted in any substantive amount at the proposed USM facility is methanol. The following table lists the carcinogenic risk (as based on analysis provided in the Integrated Risk Information System (IRIS)):

Table 1: Potential HAPs - Carcinogenic Risk

HAPs	Type	Known/Suspected Carcinogen	Classification
Methanol	VOC	No	Not Assessed

All HAPs have other non-carcinogenic chronic and acute effects. These adverse health affects may be associated with a wide range of ambient concentrations and exposure times and are influenced by source-specific characteristics such as emission rates and local meteorological conditions. Health impacts are also dependent on multiple factors that affect variability in humans such as genetics, age, health status (e.g., the presence of pre-existing disease) and lifestyle. As stated previously, *there are no federal or state ambient air quality standards for these specific chemicals*. For a complete discussion of the known health effects of each compound refer to the IRIS database located at www.epa.gov/iris and summarized in the IRIS document in the application file.

AIR QUALITY IMPACT ANALYSIS

The estimated maximum emissions of the proposed facility are less than applicability thresholds that would define the proposed facility as “major” under 45CSR14 and, therefore, no air quality impacts modeling analysis was required. Additionally, based on the nature and location of the proposed source, an air quality impacts modeling analysis was not required under §45-13-7.

MONITORING, COMPLIANCE DEMONSTRATIONS, REPORTING, AND RECORDING OF OPERATIONS

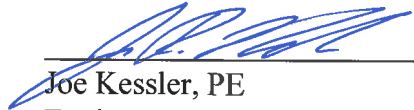
Refer to Section 4.2 of the draft permit for the unit-specific monitoring, compliance demonstration, reporting, and record-keeping requirements (MRR).

PERFORMANCE TESTING OF OPERATIONS

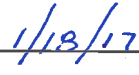
Refer to Section 4.3 of the draft permit for the unit-specific performance testing requirements.

RECOMMENDATION TO DIRECTOR

The information provided in the permit application indicates that compliance with all applicable state and federal air quality regulations will be achieved. Therefore, I recommend to the Director the issuance of a Permit Number R13-3351 to US Methanol LLC for the proposed construction and operation of the Liberty One Methanol Plant located in Institute, Kanawha County, WV.



Joe Kessler, PE
Engineer



Date

Attachment A: Facility-Wide PTE
US Methanol LLC: Liberty One Methanol Plant
Permit Number R13-3351: Facility ID 039-00689

Emission Unit	EP ID	CO		NO _x		PM ⁽¹⁾		SO _x		VOC		Total HAPs ⁽²⁾	
		lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY
SMR - Steady State	1E	8.48	37.14	16.00	70.08	0.77	3.37	0.06	0.26	0.56	2.45	0.19	0.830
ATR	2E	0.27	1.20	0.33	1.43	0.02	0.11	0.01	0.04	0.02	0.08	0.01	0.027
Flaring	5E	684.14	5.05	150.07	1.11	16.16	0.13	3.88	0.06	575.82	4.32	0.57	0.004
Storage Tanks	3E, 4E	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.27	0.24	4.27	0.240
Truck/Barge Loadouts	3E, 4E	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.96	0.86	1.96	0.860
Component Leaks ⁽³⁾	Fugitive, 5E	0.47	2.05	0.00	0.00	0.00	0.00	0.00	0.00	1.40	6.10	1.38	6.030
Vehicle Activity	Fugitive	0.00	0.00	0.00	0.00	3.45	0.22	0.00	0.00	0.00	0.00	0.00	0.000
Facility-Wide Total →		693.36	45.44	166.40	72.62	20.40	3.83	3.95	0.36	584.03	14.05	8.37	7.99

(1) All particulate matter emissions are assumed to be 2.5 microns or less. However, while particulate matter generated by the vehicle activity is speciated in the permit application, for simplicity, here it is assumed that all particulate matter emissions are 2.5 microns or less.

(2) As the PTE of all individual HAPs are less than 10 TPY and the PTE of total HAPs is less than 25 TPY, the Liberty One Methanol Plant is defined as a minor (area) source of HAPs for purposes of 40 CFR 61 and 40CFR63.

(3) Leaks from PRVs in Natural Gas and Methanol service are captured and sent to the flare (5E) for destruction.

INTERNAL PERMITTING DOCUMENT TRACKING MANIFEST

Company Name US METHANOL LLC

Permitting Action Number R13-3351 Total Days 51 DAQ Days 28

Permitting Action:

- | | | |
|---|---|--------------------------------------|
| <input type="radio"/> Permit Determination | <input type="radio"/> Temporary | <input type="radio"/> Modification |
| <input type="radio"/> General Permit | <input type="radio"/> Relocation | <input type="radio"/> PSD (Rule 14) |
| <input type="radio"/> Administrative Update | <input checked="" type="radio"/> Construction | <input type="radio"/> NNSR (Rule 19) |

Documents Attached:

- | | |
|--|---|
| <input checked="" type="radio"/> Engineering Evaluation/Memo | <input checked="" type="radio"/> Completed Database Sheet |
| <input checked="" type="radio"/> Draft Permit | <input type="radio"/> Withdrawal |
| <input checked="" type="radio"/> Notice | <input type="radio"/> Letter |
| <input type="radio"/> Denial | <input type="radio"/> Other (specify) _____ |
| <input type="radio"/> Final Permit/General Permit Registration | _____ |

Date	From	To	Action Requested
1/13/17	Joe Kessler	Bev McKeone	NOTICE APPROVAL
1/23	Bev	Joe	See Comments - Addition - Custom Notice

NOTE: Retain a copy of this manifest for your records when transmitting your document(s).


Kessler, Joseph R

From: Patrick E. Ward <PEWard@potesta.com>
Sent: Wednesday, January 18, 2017 1:45 PM
To: Kessler, Joseph R
Subject: RE: R13-3351 US Methanol Questions

1. What is the maximum daily/annual natural gas intake into the facility?
The maximum total amount of natural gas intake into the facility is 15,348,332 SCF/Day and 5,602,141,166 SCF/Year.
2. When were the SMR and the ATR constructed?
SMR- 1991 and ATR-2007
3. Does each reformer have a de-sulfurization step? How is the sulfur removed? How is it disposed of?
Each reformer has a de-sulfurization unit which removes sulfur through absorption by ZnO Catalyst. The sulfur is removed when the ZnO catalyst is replaced after approximately 4 years of operation.
4. Why is there no control device labeled "1C"?
We start with 2C and there is no "1C".

They are still reviewing the max number on the flare and also the question on the syngas combustion.

Regards,
Patrick Ward
Potesta & Associates, Inc.
7012 MacCorkle Avenue, S.E.
Charleston, West Virginia 25304
Ph: (304) 342-1400
Direct: (304) 414-4751
Fax: (304) 343-9031

ID. No. 037-00669 Reg. 3351
Com: US METHANOL
Facility: LIBERTY ONE Region: _____
Initials: 

Entire Document
NON-CONFIDENTIAL

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From: Kessler, Joseph R [mailto:Joseph.R.Kessler@wv.gov]
Sent: Wednesday, December 21, 2016 12:28 PM
To: Patrick E. Ward <PEWard@potesta.com>
Subject: R13-3351 US Methanol Questions

As we discussed on the phone:

1. What is the maximum daily/annual natural gas intake into the facility?
2. When were the SMR and the ATR constructed?
3. Does each reformer have a de-sulfurization step? How is the sulfur removed? How is it disposed of?
4. Why is there no control device labeled "1C"?
5. There seems to be a discrepancy in the various descriptions of the maximum capacity of the flare. What is the maximum design capacity of the flare in scfm (and tons/hour waste matter if available)?

Thanks,

Joe Kessler, PE
Engineer
West Virginia Division of Air Quality
601-57th St., SE
Charleston, WV 25304
Phone: (304) 926-0499 x1219
Fax: (304) 926-0478
Joseph.r.kessler@wv.gov

Kessler, Joseph R

From: Patrick E. Ward <PEWard@potesta.com>
Sent: Thursday, January 12, 2017 8:27 AM
To: Kessler, Joseph R
Subject: RE: Meeting Time

Yes at 9:00. Richard Wolfli and Jeff Beverly both of US Methanol will meet you at the entrance.

Regards,
Patrick Ward
Potesta & Associates, Inc.
7012 MacCorkle Avenue, S.E.
Charleston, West Virginia 25304
Ph: (304) 342-1400
Direct: (304) 414-4751
Fax: (304) 343-9031

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From: Kessler, Joseph R [mailto:Joseph.R.Kessler@wv.gov]
Sent: Thursday, January 12, 2017 7:51 AM
To: Patrick E. Ward <PEWard@potesta.com>
Subject: RE: Meeting Time

Confirming, I should be there around 9:00 this morning.

Thanks

Joe

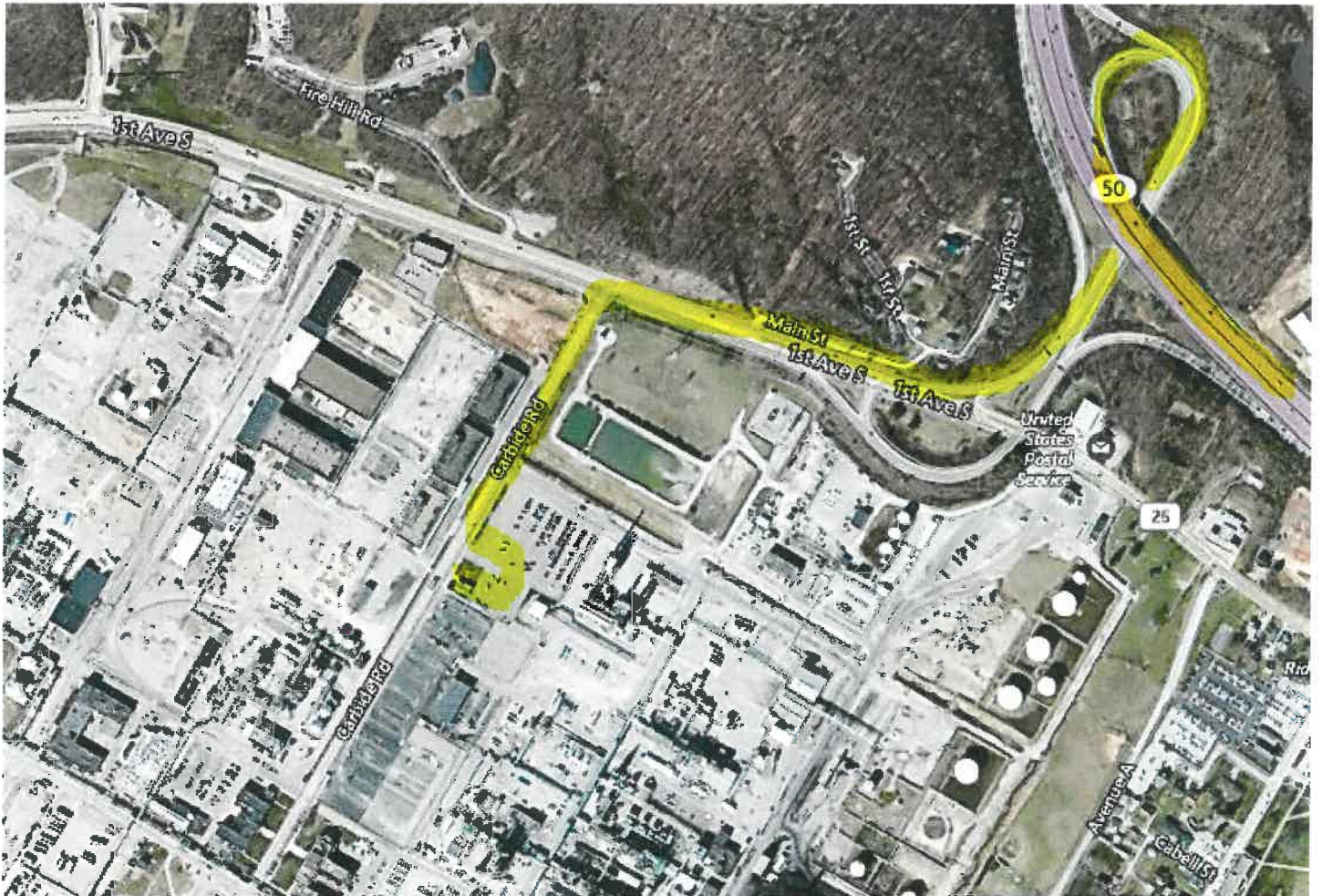
From: Patrick E. Ward [mailto:PEWard@potesta.com]
Sent: Monday, January 9, 2017 9:33 AM
To: Kessler, Joseph R <Joseph.R.Kessler@wv.gov>
Subject: RE: Meeting Time

Joe, below is where to meet on Thursday.

The mailing address won't help much past getting you to Institute. Below are a couple of snapshots that will help you find the proper location.

- Heading west on Interstate 64 from Charleston take the Institute Exit (Exit 50).
- Loop around and bear right onto State Route 25.
- At the first red light (less than a ¼ mile) turn left onto Carbide Road into the Industrial Complex.
- Before you get to the gate house entering the secured plant area you need to turn left into a large parking area.
- The "Security Building" sets at the south end of the big parking lot.

We will meet you at the Security Building to get badged in for entrance.



GATE
HOUS

SECURITY
BUILDING



Regards,
Patrick Ward
Potesta & Associates, Inc.
7012 MacCorkle Avenue, S.E.
Charleston, West Virginia 25304
Ph: (304) 342-1400
Direct: (304) 414-4751
Fax: (304) 343-9031

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From: Kessler, Joseph R [<mailto:Joseph.R.Kessler@wv.gov>]
Sent: Monday, January 09, 2017 8:31 AM
To: Patrick E. Ward <PEWard@potesta.com>
Subject: RE: Meeting Time

That works for me, thanks.

From: Patrick E. Ward [<mailto:PEWard@potesta.com>]
Sent: Friday, January 6, 2017 12:16 PM
To: Kessler, Joseph R <Joseph.R.Kessler@wv.gov>
Subject: Meeting Time

How is Thursday, January 12th at 9:00 for a site visit? Let me know.

They will provide some details on where to meet.

Regards,
Patrick Ward
Potesta & Associates, Inc.
7012 MacCorkle Avenue, S.E.
Charleston, West Virginia 25304
Ph: (304) 342-1400
Direct: (304) 414-4751
Fax: (304) 343-9031

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Kessler, Joseph R

From: Patrick E. Ward <PEWard@potesta.com>
Sent: Thursday, December 1, 2016 10:05 AM
To: Kessler, Joseph R
Subject: RE: Meeting Time

That is good. Thanks.

Regards,
Patrick Ward
Potesta & Associates, Inc.
7012 MacCorkle Avenue, S.E.
Charleston, West Virginia 25304
Ph: (304) 342-1400
Direct: (304) 414-4751
Fax: (304) 343-9031

This electronic communication and its attachments contain confidential information. The recommendations and/or design data included herein are provided as a matter of convenience and should not be used for final design or ultimate decision making. Rely only on the final hardcopy materials bearing the consultant's original signature and seal. If you have received this information in error, please notify the sender immediately.

From: Kessler, Joseph R [mailto:Joseph.R.Kessler@wv.gov]
Sent: Thursday, December 01, 2016 9:59 AM
To: Patrick E. Ward <PEWard@potesta.com>
Subject: RE: Meeting Time

Wednesday morning at 10:00AM work?

From: Patrick E. Ward [mailto:PEWard@potesta.com]
Sent: Thursday, December 1, 2016 9:54 AM
To: Kessler, Joseph R <Joseph.R.Kessler@wv.gov>
Subject: RE: Meeting Time

For schedule next week can we have Wednesday or Thursday?

Regards,
Patrick Ward
Potesta & Associates, Inc.
7012 MacCorkle Avenue, S.E.
Charleston, West Virginia 25304
Ph: (304) 342-1400
Direct: (304) 414-4751
Fax: (304) 343-9031

This electronic communication and its attachments contain confidential information. The recommendations and/or design data included herein are provided as a matter of convenience and should not be used for final design or ultimate decision making. Rely only on the final hardcopy materials bearing the consultant's original signature and seal. If you have received this information in error, please notify the sender immediately.

From: Kessler, Joseph R [mailto:Joseph.R.Kessler@wv.gov]
Sent: Thursday, December 01, 2016 8:57 AM

To: Patrick E. Ward <PEWard@potesta.com>

Subject: RE: Meeting Time

I will not be in tomorrow. Would they like to meet with just Fred?

From: Patrick E. Ward [<mailto:PEWard@potesta.com>]

Sent: Thursday, December 1, 2016 8:56 AM

To: Kessler, Joseph R <Joseph.R.Kessler@wv.gov>

Subject: Meeting Time

Is a meeting tomorrow afternoon possible with Mr. Durham?

Regards,
Patrick Ward
Potesta & Associates, Inc.
7012 MacCorkle Avenue, S.E.
Charleston, West Virginia 25304
Ph: (304) 342-1400
Direct: (304) 414-4751
Fax: (304) 343-9031

This electronic communication and its attachments contain confidential information. The recommendations and/or design data included herein are provided as a matter of convenience and should not be used for final design or ultimate decision making. Rely only on the final hardcopy materials bearing the consultant's original signature and seal. If you have received this information in error, please notify the sender immediately.

Kessler, Joseph R

From: Kessler, Joseph R
Sent: Wednesday, December 21, 2016 11:45 AM
To: richard.wolfli@usmeoh.com
Cc: Patrick Ward (PEWard@POTESTA.com); Kessler, Joseph R
Subject: R13-3351 Permit Application Status

RE: Application Status: Complete
US Methanol LLC
Liberty One Methanol Plant
Permit Application: R13-3351
Plant ID No.: 039-00669

Entire Document
NON-CONFIDENTIAL

Mr. Wolfi,

Your application for a construction permit was received by the Division of Air Quality (DAQ) on November 28, 2016 and assigned to the writer for review. Upon an initial review, the application has been deemed complete as of the date of this e-mail. The ninety (90) day statutory time frame began on that day.

This determination of completeness shall not relieve the permit applicant of the requirement to subsequently submit, in a timely manner, any additional or corrected information deemed necessary for a final permit determination.

Should you have any questions, please contact me at (304) 926-0499 ext. 1219 or reply to this email.

Thank You,

Joe Kessler, PE
Engineer
West Virginia Division of Air Quality
601-57th St., SE
Charleston, WV 25304
Phone: (304) 926-0499 x1219
Fax: (304) 926-0478
Joseph.r.kessler@wv.gov

Kessler, Joseph R

From: Ward, Beth A
Sent: Tuesday, November 29, 2016 10:53 AM
To: Kessler, Joseph R
Subject: US METHANOL LLC PERMIT APPLICATION FEE

This is the receipt for payment received from:

US METHANOL LLC, LIBERTY ONE METHANOL PLANT, CHECK NUMBER 7411, CHECK DATE 11/18/2016, \$2,000.00
R13-3351 ID# 039-00669

OASIS CR 1700057975

THANK YOU!

Beth Ward

WV DEPARTMENT OF ENVIRONMENTAL PROTECTION
BTO FISCAL
601 57TH STREET SE
CHARLESTON, WV 25304
(304) 926-0499 EXT 1846
beth.a.ward@wv.gov

UC Defaulted Accounts Search Results

Sorry, no records matching your criteria were found.

FEIN:

Business name: US METHANOL LLC

Doing business as/Trading as:

Please use your browsers back button to try again.

WorkforceWV	Unemployment Compensation	Offices of the Insurance Commissioner
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UC Defaulted Accounts Search Results

Sorry, no records matching your criteria were found.

FEIN: 811952040

Business name:

Doing business as/Trading as:

Please use your browsers back button to try again.

WorkforceWV	Unemployment Compensation	Offices of the Insurance Commissioner
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Non-Contingent

Non-Contingent



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INVOICE DATE	11/30/16
ACCOUNT NBR	065376006
SALES REP ID	0010
INVOICE NBR	018653001

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ISSUE DATE	AD TYPE	PUB	DESCRIPTION	AD NUMBER	AD SIZE	RATE	GROSS AMOUNT	NET AMOUNT
			REFERENCE NBR PURCHASE ORDER #		TOTAL RUN			
11/29	LEG	GZ	US Methanol	0645605	1X0575	9.10	52.33	52.33
<p>LEGAL ADVERTISEMENT AIR QUALITY PERMIT NOTICE Notice of Application Notice is given that US Methanol LLC has applied to the West Virginia Department of Environmental Protection, Division of Air Quality, for a Regulation 13 Permit Application for the construction of a methanol plant in Kanawha County, West Virginia. The latitude and longitude coordinates are: 38.387661 and -81.781221.</p> <p>The applicant estimates the potential increase to discharge the following Regulated Air Pollutants will be: NOx of 72.67 tons per year (tpy), VOC of 13.16 tpy, CO of 16.13 tpy, PM of 2.01 tpy, PM10 of 1.83 tpy, PM2.5 of 1.80 tpy, SO2 of 0.11 tpy, methanol of 7.13 tpy and total hazardous air pollutants of 7.16 tpy.</p> <p>Startup of operation is planned to begin on or about the 1st day of July, 2017. Written comments will be received by the West Virginia Department of Environmental Protection, Division of Air Quality, 601 57th Street, Charleston, WV 25304, for at least 30 calendar days from the date of publication of this notice.</p> <p>Any questions regarding this permit application should be directed to the DAQ at (304) 926 0499, Extension 1250, during normal business hours.</p> <p>Dated this 29th day of November, 2016.</p> <p>By: US Methanol LLC Richard Wolfli COO 400 Capital Street, Suite 200 Charleston, WV 25301 (645605)</p>							52.33	52.33

State of West Virginia,

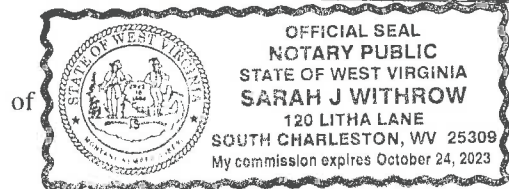
AFFIDAVIT OF PUBLICATION

I, McGill

CHARLESTON GAZETTE MAIL,
 do solemnly swear that the legal notice of:
 US Methanol

was duly published in said newspaper(s) at the stated price for the respective newspaper(s) and during the dates listed below:

Subscribed and sworn to before me this 1 day of Dec 2016



Notary Public of Kanawha County, West Virginia

Adkins, Sandra K

From: Adkins, Sandra K
Sent: Monday, November 28, 2016 4:38 PM
To: 'richard.wolfli@usmeoh.com'; 'peward@potesta.com'
Cc: McKeone, Beverly D; Kessler, Joseph R
Subject: WV DAQ Permit Application Status for US Methanol LLC; Liberty ONE Methanol Plant

**RE: Application Status
US Methanol LLC
Liberty ONE Methanol Plant
Facility ID No. 039-00669
Application No. R13-3351**

Entire Document
NON-CONFIDENTIAL

Mr. Wolfli,

Your application for a construction permit for the Liberty ONE Methanol Plant was received by this Division on November 28, 2016, and was assigned to Joe Kessler. The following item was not included in the initial application submittal:

Original affidavit for Class I legal advertisement not submitted.

This item is necessary for the assigned permit writer to continue the 30-day completeness review.

Within 30 days, you should receive a letter from Joe stating the status of the permit application and, if complete, given an estimated time frame for the agency's final action on the permit.

Any determination of completeness shall not relieve the permit applicant of the requirement to subsequently submit, in a timely manner, any additional or corrected information deemed necessary for a final permit decision.

Should you have any questions, please contact the assigned engineer, Joe Kessler, at 304-926-0499, extension 1219.

